A
SYSTEMATIC ARRANGEMENT
OF
BRITISH PLANTS.

IN FOUR VOLUMES.

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A

SYSTEMATIC ARRANGEMENT

OF

BRITISH PLANTS;

WITH AN EASY

INTRODUCTION TO THE STUDY OF BOTANY.

ILLUSTRATED BY COPPER-PLATES.

BY WILLIAM WITHERING, M.D. F.R.S.
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Medical Society at Edinburgh, &c.*

THE FOURTH EDITION, IN FOUR VOLUMES:

CORRECTED AND ENLARGED
BY WILLIAM WITHERING, ESQ.
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Fellow of the Linnean Society, &c.*

" Primus gradus sapientiæ est res ipsas nosse." LINN.

" Increscunt quotannis Scientiæ, emendantur quotidie, et ad fastigium suum optatum sensim sensimque, plurium virorum opera et studio junctis, feliciter properant." THUNBERG.

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THE unexpectedly rapid sale of the Third Edition of this work has compelled the Editor of the present Edition to submit it to the Public under several very unfavourable circumstances, which it is here unnecessary to particularize.

Nevertheless, he trusts, the discriminating Botanist will think the numerous corrections and additions sufficient to justify the publication, especially when it is considered that the last thoroughly reformed Edition was nearly ten years in preparation, this only three.

Beside the many respectable names contained in the list affixed to the Preface, several other correspondents have liberally contributed their assistance: particularly

Mr. George CALEY, *Strangeways*, near *Manchester*.

Mr. W. EVANS, *Tildsley-Chaddock, Lancashire.*

Sir Tho. FRANKLAND, Bart. *Thirkleby, near York.*

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Mr. TRAVIS, *Surgeon, Scarborough.*

Dawson TURNER, Esq. *Yarmouth.*

THE LARCHES, near Birmingham,
October 1800.

PREFACE

TO THE THIRD EDITION.

ENCOURAGED by the public reception of the former editions, the Author has spared neither labour nor expence, to render this as perfect as his opportunities and abilities would permit. The progress of botanic knowledge is so rapid, and the discoveries so numerous, both at home and abroad, that this may rather be regarded as a new work than as a re-publication of an old one. On this account, a short enumeration of the more important changes may possibly be expected by the reader.

The GENERA are now taken from SCHREBER's GENERA PLANTARUM, published at Frankfort in 1789, and 1791. The structure of each Genus is illustrated by references to such figures as are best calculated to give an idea of it, particularly those in the *Institutions* of TOURNEFORT, the works of GÆRTNER, and the *Cryptogamiæ* of HEDWIG. The exceptions and observations at the end of each Genus are also considerably augmented.

The characters of the species have been compared with the third edition of the *Species Plantarum*, and with GMELIN's *Systema Naturæ* published at Leipsic in 1791. Many of the Specific Characters, particularly in the more difficult tribes, are entirely new, and many have undergone considerable alterations. The Author has not hesitated in these attempts at improvement, because he is fully convinced that neither the amendment, nor the entire change of these characters can produce confusion in the science, so long as the trivial names remain inviolable.

Many of the additional descriptions taken from foreign Authors have been discarded, to make room for others made by the Author or his friends from recent examinations of the plants as they grow in this island: other descriptions are shortened, especially where the plants are well known, and indubitably distinguished by the specific character.

The references to figures so ably executed by Dr. Stokes for a great part of the second edition, are mostly preserved in this, though not without some changes in the order of excellence, the erasure of a few which were found to be erroneous, and of others which were thought too bad to be quoted. The historical facts relative to the older figures, stating which are copies and which originals, though perhaps thought curious by some few people, are omitted, partly because they are foreign to the purpose of this work, and partly to make room for additional references now given to infinitely better figures, in the continuations of JACQUIN, BULLIARD, HEDWIG, DICKSON, RETZIUS, SEGUIER, HOFFMAN, the *Flora Rossica*, the *Flora Danica*, the *Flora Londinensis*, and the *Transactions of the Linnean Society*; besides many from other writers, before omitted, and from the following Books not before noticed, viz. ALLIONI *Flora Pedemontana*, HOFFMAN'S *Historia Salicum*, KNIPHOFF'S coloured impressions, SMITH'S and SOWERBY'S characteristic figures, STACKHOUSE and VELLEY on *Marine Plants*, and WOODVILLE'S *Medical Botany*, SWAYNE'S *Gramina pascua* and DICKSON'S *Fasciculi of dried plants* are also referred to.

The English reader will perceive that considerable changes have been made in the *Terms*, by a nearer approach to the Linnean language; but in this point the Author rather willingly follows than presumptuously attempts to lead the public taste; and as the Explanatory Dictionary of terms is much enlarged and improved, he hopes that no person will have cause to regret the change.

The classes Gynandria, Monoecia, Dioecia, and Polygamia are now incorporated with the other Classes; that is, the plants they contained are distributed, each in its proper class, according to the number of Stamens. This alteration in the System has not been made without the approbation of Professor THUNBERG, the worthy successor of the great Linnæus; and it meets the concurrence of most of the first botanists of the age.

The reader will find in the present edition, many Species added to the British Flora, some of them non-descript: A few have been discarded because confessedly not indigenous, but some doubtful ones are yet retained, upon the principle, that their retention can produce no inconvenience, whilst their omission might be a real defect.

In the Cryptogamia class, and in some other parts where the Species are very numerous, new arrangements have been attempted, in hopes of facilitating their investigation. The system of Agarics formed for the second edition, has been improved, and considerably augmented: and lastly, to gain more room, the USES of the different plants have been thrown into Notes at the foot of the page.

The Author cannot conclude without expressing his gratitude for the very liberal assistance he has experienced, and his hopes of its continuance; conscious that the efforts of any individual would avail but little towards perfecting the botany of the British Islands.

Besides the list of contributors to the present edition he begs leave more particularly to mention the respectable names of, Mr. AFZELIUS, Demonstrator of Botany in the University of Upsal, who looked over great part of the Author's collection, and afforded many valuable observations concerning the identity of several Swedish and English Species;—the Rev. Samuel DICKENSON, who sent several curious observations on the difficult genus Agrostis;—Mr. James DICKSON, who furnished many specimens and answered several queries respecting plants of the Cryptogamia class, in which he so particularly excels;—the Rev. Dr. GOODENOUGH, who, in addition to his masterly elucidation of the genus Carex in the Trans. of the Linn. Society, sent several specimens of the rarer kinds, and ascertained several doubtful species both in that genus and also in the Fuci;—J. W. GRIFFITH, Esq. whose numerous and instructive specimens and observations have greatly enriched the catalogue of Mosses and Lichens;—Dr. HOPE, whose specimens from his own collection, and from that of his late worthy father, the Professor of Botany at Edinburgh, have much contributed to elucidate the Flora of Scotland;—the Right Hon. Lady Elizabeth NOEL, who furnished the first Byssus ever observed in fructification:—Dr. PULTENEY, whose specimens and remarks assisted in correcting some mistakes respecting some of the plants in the Southern Counties;—Mr. Edward ROBSON, who has enriched the work with more new Species, and several valuable observations on the Plants of the Northern Counties;—the Rev. Richard RELHAN, whose indefatigable researches have greatly increased the Catalogue of

English plants;—Dr. J. E. Smith, who has ever shewn the utmost readiness to answer such enquiries as the Author has been led to make, particularly such as depended upon the inestimable Herbarium, so happily for science, in his possession; —John Stackhouse, Esq. who, with the utmost liberalty, contributed by every means in his power to illustrate the Fuci and Confervæ;—the Rev. G. Swayne, whose practical knowledge of the Grasses enabled him to furnish many observations of high importance to agriculture;—Sir Charles Thunberg, who, in the most handsome manner, sent a collection of Swedish plants, which have not a little assisted in clearing up doubts respecting some species insufficiently discriminated by Linnæus;—Thomas Woodward, Esq. the fruits of whose accurate and unceasing researches need not be particularly mentioned; they are conspicuous in almost every page of the work.

It would be easy to add the names of several other persons whose friendship and assistance would appear highly honourable to the Author, but some he is restrained from mentioning, and others will be found in the following List, and also affixed to their respective communications.

A List of the Names of those who have favoured this Edition with their Assistance.

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AN EASY

INTRODUCTION

TO THE

STUDY OF BOTANY.

Of the Parts of a Flower.

TAKING it for granted, that no person can be at a loſs to distinguish a Vegetable at first sight, from an Animal, or a Foſsil, and that all Vegetables are capable of producing Flowers and Fruit,* we shall immediately enter upon a description of the parts composing a Flower; for as the Linnæan System of Botany is chiefly founded upon the *number*, *shape*, *situation*, and *proportion* of these parts, an accurate knowledge and discrimination of them is neceſsary to understanding the Elements of the Science.

A Flower consists of the
- Calyx (or *Empalement.*)
- Blossom (or *Corolla.*)
- Stamens (or *Chives.*)
- Pistils (or *Pointals.*)
- Seed-vessel (or *Pericarpium.*)
- Seeds (or *Semina.*)

To these may be added, the Nectary (or *Honey-cup*,) and the Receptacle, (or *Receptaculum.*)

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* By *Fruit* is here meant *perfect Seeds*, whether accompanied, or not, by an eatable part.

Some flowers poſseſs all these different parts, whilst others are deficient in some of them; but either Stamens or Pistils, or both, are to be found in every perfect flower.

The Calyx is formed of one, or more, green, or yellowish green leaves, placed at a small distance from, or close to, the bloſsom.

The different kinds of Calyx are (1) a Cup, or *Perianthium;* (2) an Involucrum, or *Fence;* (3) a Catkin, or *Amentum;* (4) a Sheath, or *Spatha;* (5) a Husk, or *Gluma;* (6) a Veil, or *Calyptra;* (7) a Curtain, or *Volva;* but the most common is the Cup. For an explanation of these see the Dictionary of Terms; or look at a Rose, and the green covering which incloses and supports the bloſsom, is called the Cup. Pl. 3. fig. 1. (*a. a. a. a. a.*) The Cup of a Polyanthus is represented in pl. 3. fig. 10.

According to Linnæus, the Calyx is formed by the outer bark of the plant.

The Bloſsom is that beautifully coloured part of a flower, which attracts the attention of every one. It is composed of one or more Petals, or Bloſsom-leaves. If it be in one piece, as in the Polyanthus or Auricula, it is said to be a bloſsom of *one Petal;* but, if it be composed of several parts, it is accordingly said to be a bloſsom of *one*, *two*, *three*, &c. or *many* parts or *Petals*. Thus the bloſsom of the Tulip is formed of *six* Petals; and the Garden Roses bear bloſsoms composed of *many* Petals. The bloſsom is supposed to be an expansion of the inner bark of the plant.

The Stamens are slender thread-like substances, generally placed within the Bloſsom, and surrounding the Pistils. A Stamen is composed of *two* parts, the Filament (or *Thread*) and the Anther; but the Anther is the eſsential part. Stamens are formed of the woody substance of the plant.

The Pistils are to be found in the center of the flower: they are composed of *three* parts, the Germen (or *Seed-bud*), the Style (or *Shaft*), and the Summit (or *Stigma;*) but the Style is often wanting. Some flowers have only one Pistil; others have two, three, four, &c. and some have more than can be easily counted. Linnæus says, the Pistils are formed of the pith of the plant.

The SEED-VESSEL. In the newly-opened flower, this part was called the *Germen;* but when it enlarges, and approaches to maturity, it is called the Seed-veſsel. Some flowers have no Seed-veſsels: in which case, the seeds are said to be *naked;* the Cup, however, generally incloses and retains the Seeds until they ripen; and in the Tribe of Graſses, this office is frequently performed by what was before called the Bloſsom.

SEEDS are sufficiently well known; the substance to which they are affixed within the seed-veſsel is called the *Receptacle* of the Seeds.

NECTARIES are those parts of a flower which are destined to contain or prepare a honey-like liquor. The tube of the bloſsom serves the purpoſe of a Nectary in many flowers, as in the Honey-suckle: but in other flowers there is a peculiar organization created for this purpose. See pl. 5, fig. 1, 2, 3, 4. —It must be acknowledged, that the term Nectary is frequently given to parts which do not appear to contain, or to secrete any honey-like liquor; but until the uses of these parts be better ascertained, and the œconomy of vegetable life more fully understood, an attempt to limit the use of the term, and to create new ones, would be premature.

The RECEPTACLE is the Seat or Base to which the above-mentioned parts of a flower are fixed. Thus, if you take a flower and pull off the Calyx, the Bloſsom, the Stamens, the Pistils, and the ſeeds, or Seed-veſsels, the remaining part at the top of the stalk is the Receptacle. In many flowers the Receptacle is not a very striking part, but in others it is very large and remarkable: thus in the Artichoke, after we have taken away the leaves of the Calyx, the bloſsoms, and the bristly substances, the part remaining, and so much esteemed as food, is the Receptacle.

Having thus briefly mentioned the different parts which enter into the composition of Flowers, let us, for the sake of illustration examine some well-known instance. Suppose it be a flower of the Crown Imperial.

CROWN IMPERIAL.

Calyx	None.
Blossom....	Six Petals. (Pl. 3, fig. 2. *a. a. a. a. a. a.*)
Stamens....	Six. (Pl. 3, fig. 2. *bc. bc. bc. bc. bc. bc.*) *Filaments* six; shaped like an awl. (Pl. 3, fig. 2. *b. b. b. b. b. b.*) *Anthers* oblong; four-cornered. (Pl. 3, fig. 2. *c. c. c. c. c. c.*)
Pistil......	Single. *Germen* oblong: three-cornered. (Pl. 3, fig. 2. *d.*) *Style* longer than the Stamens. (Pl. 3, fig. 2. *e.*) *Summit* with three divisions. (Pl. 3, fig. 2, *f.*)
Seed-vessel.	An oblong capsule, with three cells and three valves. (Pl. 3, fig. 4.) represents the Seed-veſsel cut acroſs to shew the three cells in which the seeds are contained.
Seeds......	Numerous; flat.

By considering this description with some attention, and comparing it with the flower itself, and likewise with the engraved figures, we shall soon attain a pretty good idea of the different parts of a flower. If a Crown Imperial be not at hand, a Tulip or a Lily will correspond pretty well with the above description. But if we examine the Crown Imperial, we shall find at the base of each Petal, a cavity or hollow, filled with a sweet liquor: this is the Nectary. In pl. 3, fig. 3, is a representation of one of the Petals separated from the rest, to shew the Nectary at (*k*) and one of the Stamens (*h. i.*)

It is natural to ask the uses of these different parts—A full reply to such a question would lead to a long disquisition, curious in itself, but quite improper in this place. Let it therefore suffice to observe, that the production of perfect Seed is the obvious use of the flower; that for this purpose the Germen, the Summit, and the Anthers, are all that are eſſentially neceſsary; and perhaps the Summit might be dispensed with. The fine dust, or Pollen, contained in the Anthers, is thrown upon the Summit of the Pistil. This Summit is moist, and the moisture acting upon the particles of the Pollen, occasions them to explode, and discharge a very subtile vapour. This vapour paſsing through the minute tubes of the Pistil, arrives at the Embryo Seeds in the Germen, and fertilizes them. The seeds of many plants have been observed to become, to all appearance perfect, without this communication: but these seeds are incapable of vegetation. In pl. 3, fig. 5, at *f.* one of the Anthers is represented discharging its Pollen: and at fig. 8. you see a particle of this Pollen greatly magnified and throwing out its vapour. The Calyx and the Petals seem primarily designed as covers, to protect the more eſsential parts; and perhaps it is not too vain an imagination to believe, that a display of beauty was in some measure the design of the Creator.

Independent however of these uses, the Botanist takes advantage of the different number, figure, size, and situation of these parts, and aſsumes them as the foundation of a systematic arrangement. He divides all the vegetable productions upon the surface of the globe into Claſses, Orders, Genera, Species, and Varieties. The Claſses are composed of Orders; the Orders are compoſed of Genera; the Genera of Species; and the Species admit of Varieties.

Claſsification explained.

We are accustomed to consider the productions of Nature as forming three distinct parts, called the Animal, the Vegetable, and the Foſsil or Mineral KINGDOM.

Therefore, taking the matter up in this familiar language, let us endeavour to attain an idea of Claſses, Orders, &c. by continuing the allusion. Let us compare

The VEGETABLE KINGDOM to the KINGDOM OF ENGLAND:

.... CLASSES	to the COUNTIES;
.... ORDERS	to the HUNDREDS;
.... GENERA	to the PARISHES;
.... SPECIES	to the VILLAGES;
.... VARIETIES	to the HOUSES.

Some have aptly enough compared

A CLASS ..... to an ARMY ;
An ORDER .... to a REGIMENT ;
A GENUS .... to a COMPANY ;
And a SPECIES to a SOLDIER.

But no comparison can be more in point, than that which considers the Vegetables upon the face of the globe, as analogous to the inhabitants ; thus,

VEGETABLES resemble the INHABITANTS in general ;
CLASSES.... resemble the NATIONS ;
ORDERS .... resemble the TRIBES ;
GENERA.... resemble the FAMILIES ;
SPECIES .... resemble the INDIVIDUALS ;
And VARIETIES are the same *Individuals* in different circumstances.

All the Vegetables in Great Britain are divisible, according to the System of Linnæus, into twenty-four Claſses. These have, of late, been reduced to nineteen, as will be more particularly noticed hereafter.

The characters of the CLASSES are taken either from the *number*, the *length*, the *connection*, or the *situation* of the STAMENS ; but those founded upon the difference of *situation*, are now given up ; the Genera and Species formerly so arranged, being now dispersed through the other Claſses, according to the number of their Stamens.

The characters of the ORDERS are most frequently taken from the *number* of the PISTILS ; but sometimes from some other circumstances, either of the Stamens or Pistils, as will be noticed in the proper place.

The *eſsential* characters or marks of the GENERA, are taken from some particulars in the flower, before unnoticed ; but generic descriptions are designed to contain an account of *all* the most obvious appearances in every part of the flower.

The **Species** are mostly characterized from peculiarities in the **Stem** or **Leaves**; sometimes from parts of the **Flower**; rarely from the **Roots**.

Varieties.—Both leaves and flowers are subject to variations; some of them evidently dependent upon soil and situation: but others owing to causes hitherto unascertained. Thus the leaves of the Ranunculus aquatilis, or Water Crowfoot, growing beneath the surface of the water, are much more divided than those which grow above the surface; so that a person unacquainted with this circumstance, would hardly believe they belonged to the same plant. Again; the leaves of the Polygonum amphibium, or Amphibious Snakeweed, in wet situations, are smooth; but, in dry and warm situations, rough. Some authors, therefore, have reckoned them as distinct species; but, let them change situations, and the appearances will be changed likewise. But why the leaves of Mint are sometimes curled, those of Holly or Mezereon variegated with white, &c. is a more difficult matter to determine; seeing that slips from these plants, though transplanted into different soils, do not lose their peculiarities: but young ones raised from seeds return to their original form. It is evident, therefore, that these, however different in appearance, are not to be considered distinct species, but only varieties.

No variations are more common than those of colour; but desirable as these changes are to the Florist, they have little weight with the Botanist, who considers them as variable accidental circumstances, and therefore by no means admiſsible in the discrimination of species. It must, however, be allowed, that in some plants the colours of the flowers are not liable to variation, and that they often afford the readiest marks of distinction; on which account they are generally mentioned in the course of this work.

Many flowers, under the influence of garden culture, become double; but double flowers are monsters, and therefore can only rank in a System of Botany, as varieties. When we consider, that every plant is composed of an outer bark, an inner bark, a wood, and a heart or pith; and that flowers are formed by an expansion of these parts; when we recollect too, that the Stamens are formed of the woody substance; and are told, that this woody substance was originally formed by many coats of the inner bark consolidated, we shall not be at a loſs to account for the production of double flowers. The woody substance, instead of being formed into Stamens, is expanded into Petals. This seems to be effected by too much succulent nourishment, which prevents the wood becoming sufficiently solid. Hence it is, that the flowers with many Stamens are more apt to become double, and to a greater degree, than those which have few; as appears in the Anemone, the Ranunculus, the Poppy, and the Rose. Where the Petals are so much multiplied as to exclude all the Stamens, the flowers neceſsarily become barren.

Of Claſses, Orders, and Genera.

OF CLASSES.

By looking over the following Table of the Claſses; by referring to plate I; and sometimes by having recourse to the plants mentioned as examples, the learner will soon commit the names and characters of the Claſses to memory, so that upon the first sight of a flower, it will be no difficult matter for him to refer it to its proper Claſs. The examples are adduced by their English names, as being more obvious to the young English Botanist, who will readily find the corresponding Linnæan names, by turning to the General Index, at the end of the third volume. In a few instances, these examples, to illustrate the Claſses, are taken from foreign Genera; and therefore are not to be found in the Index; but they are plants very generally known, and may be found in almost every garden. The names of these are printed in Italic.

Pl. I. *to front P. 9.*

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TABLE OF THE CLASSES.

Claſs.		*Pl. 1. fig.*	*Examples.*
1. Monandria	(1 Stamen, in each flower)	1. (*a*)	Mares-tail. Parsleypiert.
2. Diandria	(2 Stamens, in each flower)	2.	Privet. Sage.
3. Triandria	(3 Stamens, in each flower)	3. (*a. a. a.*)	Yellow Flag. Saffron. The Graſses.
4. Tetrandria	(4 Stamens, in each flower) *all of the same length*	4.	Plantain. Teasel. Scabious.
5. Pentrandria	(5 Stamens, in each flower) *the Anthers not united*	5.	Honeysuckle. Primrose. Borage.
6. Hexandria	(6 Stamens, in each flower) *all of the same length*	6.	Snowdrop. Sparagus. Daffodil.
7. Heptandria	(7 Stamens, in each flower)	7.	*Horse Chesnut.*
8. Octandria	(8 Stamens, in each flower)	8.	Mezereon. Heath. Willowherb.
9. Enneandria	(9 Stamens, in each flower)	9.	Bay-tree. Flowering Rush.
10. Decandria	(10 Stamens, in each flower) *the Filaments not united*	10.	Campion. Pink. Sedum. Arbutus.
11. Dodecandria	(From 12 to 19 Stamens, in each flower)	11.	Houseleek.
12. Icosandria	(Stamens more than 12, fixed to the Calyx or Petals)	12.	Hawthorn. Plumb. Pear. Rose.
13. Polyandria	(Stamens 20 to 1000, fixed to the Receptacle)	13.	Poppy. Crowfoot. Larkspur. Anemone.
14. Didynamia	(Stamens 4, 2 long and 2 short)	14. *a. a. c. c. c.*	Ground Ivy. Foxglove. Toadflax.
15. Tetradynamia	(Stamens 6, 4 long and 2 short)	15. *a. a. a. a. b. b.*	Cabbage. Wallflower. Ladiesmock.
16. Monadelphia	(All the Filaments united)	16. *c. c. c.*	Mallow. Geranium.
17. Diadelphia	(Filaments united in 1 or 2 sets) *Bloſsom Butterfly-shaped*	17. *a. b.*	Pea. Gorse or Furze. Broom.
18. Polyadelphia	(Filaments united in 3 or more sets)	18.	*Orange.* St. John's Wort.
19. Syngenesia	(5 Stamens, the Anthers united) *Flowers compound*	19.	Coltsfoot. Dandelion. Thistle. Sunflower.

20. Gynandria. 21. Monoecia. 22. Dioecia. 23. Polygamia. See pl. 1. fig. 20, 21, 22, 23. The Plants of these Claſses are now incorporated with the preceding, according to the number of their Stamens.

24. Cryptogamia .... Flowers inconspicuous. See the Introduction to that Claſs; also pl. 1. fig. A. B. C. D. E. F. G. H. Examples: Fern. Moſs. Liverwort. Sea-weeds. Mushrooms.

OF ORDERS.

A knowledge of the Orders will very readily be attained, by obſerving, that

In the Claſs DIDYNAMIA, they depend upon the Seeds having a Seed-veſsel, or not.
.... TETRADYNAMIA, upon the shape of the Seed-veſsel.
.... SYNGENESIA, upon the structure of the Florets. (See the Introduction to that Claſs.)
.... CRYPTOGAMIA, upon the natural aſsemblages of plants resembling one another.

And that in all the other Claſses, not particularly specified, the Orders depend upon the *number* of the Pistils only. In determining the number of Pistils, count the Styles, as they appear at their bottom part, or base; but if the Summits are not supported upon Styles, then count the Summits.

OF GENERA.

Before we can understand the Characters of a Genus, we must again consider the different parts which enter into the structure of flowers, and learn how those different parts may be modified. As for instance, The Calyx may be either a

- Cup *(Perianthium)* fixed near to the flower; as in the Rose, the Cowslip, or the Foxglove.
- Involucrum, remote from the flower; generally belonging to the Rundle-bearing, or Umbelliferous plants; as Hemlock, or Carrot. When it surrounds the base of the Umbel, it is called the *general* Involucrum; but, when it surrounds the base of an Umbellule, or little Umbel, it is called the *partial* Involucrum, or Involucellum.
- Catkin, *(Amentum)* as in Willow, or Hasel.
- Sheath, *(Spatha)* as in Snowdrop, or Daffodil.
- Husk, *(Gluma)* as in Wheat, Oats, or other different kinds of Graſses.
- Veil, *(Calyptra)* covering the fructification of some of the Moſses, and resembling an extinguisher.
- Curtain, *(Volva)* surrounding the Stems, and attached to the Pileus of many of the Fungi.

For a further explanation of these terms, and for references to the plates, examine the Dictionary of Botanical Terms, placed at the close of this introductory part.

The Blossom may be either

- of one Petal, *as the* Foxglove or Primrose;
- of many Petals, *as the* Rose or Anemone;
- but in many flowers the Petals are altogether wanting.

For a more full explanation of the modifications of Petals and Bloſsoms, see the Dictionary, and likewise plate 4.

The Stamens and Pistils have been sufficiently explained before; but it is neceſsary here to remark, according to the Linnæan System, which from its being founded upon the distinction of the sexes of plants, is also called the Sexual System, that the Stamens are considered as the male, and the Pistils as the female parts; so that flowers containing only the former, are sometimes called male flowers, and such as have only the latter, are called female flowers; but as the greater part of flowers contain both Stamens and Pistils, they are of course called Hermaphrodites.

A Seed-vessel may be either

- a Capsule, *(Capsula)* membranaceous, opening variously; as in Poppy, Convolvulus, Pimpernel.
- a Pod, *(Siliqua)* membranaceous, of 2 valves, the Seeds fixed to each seam; as in Wall-flower, and Honesty.
- a Legumen; membranaceous, of 2 valves, the Seeds fixed to one seam only; as in Pea and Broom.
- an Air-bag, *(Folliculus)* membranaceous, distended, of 1 valve, opening by a seam at one side, not embracing the Seed; as in Periwinkle.
- a Berry, *(Bacca)* pulpy, without valves; the Seeds separate; as in Gooseberry, Currant, and Elder.
- a Drupa, pulpy, and without valves, inclosing a hard nut, or stone, as the Cherry, or the Peach.
- a Pomum, fleshy or pulpy, covering a capsule containing the seed; as in the Pear, or Apple.
- a Cone, *(Strobilus)* tiled; as in Fir, or Pine.

These Terms will be found more fully explained in the Dictionary, and illustrated in plate 5.

A Receptacle *(Receptaculum)* is either peculiar to one flower, as in the Rose, Lily, and Polyanthus; or common to many flowers, as in the Dandelion, Hawkweed, and Artichoke. (See the Dictionary.)

FLOWERS may be collected into
- a SPIKE, (*Spica.*)
- a PANICLE, (*Panicula.*)
- a CORYMBUS, (*or broad-topped spike.*)
- a BUNCH, (*Racemus.*)
- an UMBEL, (*Umbella.*)
- a TUFT, (*Cyma.*)
- a WHIRL, (*Verticillus.*)
- CATKIN, (*Amentum.*)

Each of these terms may be found in the Dictionary, where they are explained by familiar examples, and by references to the plates.

For a proper understanding of COMPOUND FLOWERS, the reader is likewise referred to the Dictionary, and to the explanation of the 4th plate.

The reader having now, it is supposed, attained tolerably precise ideas of the constitution of Claſses and Orders, and likewise of the parts upon which the Generic Characters are founded; we shall select a few instances of well known plants, and, after investigating them systematically, we shall hardly be at a loſs to investigate others which we do not know.

Rules for Investigation.

First. When a plant offers itself to our inspection, the first thing to be determined is the Claſs to which it belongs. This is to be done by examining the number of the Stamens, and referring to the preceding Table of the CLASSES. Should there be a difficulty in ascertaining the number of the Stamens, on account of the number appearing different in different flowers, though belonging to the same plant, it is advisable to examine one or more of the flowers which are yet unopened, for the Anthers are in that state more distinct, and we may be certain that none of them have been lost. Having fixed upon the Claſs which we believe to be right, let us turn to the Introduction to that Claſs, in this volume, and if the perusal of this gives us no reason to alter our opinion, we are pretty certain of being so far right. It is best not to trust to the examination of one flower only; for we shall sometimes find the number of Stamens to be really different, in different flowers upon the same plant; but in that case the claſsic character must be taken from the *terminating* flower.

Second. Having thus determined the Claſs, we must next refer to the beginning of that Claſs in the second or third volume, where we shall find the Synopsis of the Genera contained in that Claſs. Here also we must look of how many Orders the Claſs consists; and after observing the circumstances by which the Orders are determined, we must compare these with the plant before us. If the Order we refer it to has any subdivisions, we shall soon perceive under which of the subdivisions we should expect to find the Genus.

Third. After comparing the Flowers with the Characters of the different Genera contained in the Order, or in the particular subdivision of the Order, we shall soon perceive with which of them it best corresponds. We now turn back to the description of that Genus in this volume, and if the description agrees pretty exactly with our specimen in all the leading characters, we conclude that we are now certain of the Genus. Doubtful matters will sometimes arise; but these are for the most part made clear by observations subjoined to the generic descriptions.

In consulting the generic descriptions, the learner is desired to pay particular attention to the structure of the Pistil, and especially to that of its Germen, when it begins to ripen into a Seed-veſsel; because these parts being most eſsential to the continuation of the species, they are leſs liable to variation than the other leſs important parts.

Fourth. If none of the Generic Characters at the beginning of the Claſs agree with the Flower, we must then look at the end of the Order, or subdivision of the Order, to which we had referred it, and see what plants are there mentioned and included between crotchets. If we have not found the plant before, it must be some one of these; therefore looking for these in the Index to this volume, and comparing the generic descriptions with the specimen in hand, we shall not only discover the Genus, but likewise the circumstance which occasioned our perplexity.

The young Students are desired to practise the investigation of Genera only, for a considerable time, before they attempt to ascertain a Species; and when by this means they have attained a pretty accurate knowledge of Claſses and Orders; also of the parts composing a flower, and its subsequent state of fruit, or fructification, and likewise of the terms employed in describing them, they may next proceed to determine the Species.

OF SPECIES.

Fifth. Either in the second or third volume, we shall find the name, and the Eſsential Character of the Genus, followed by the several British Species which belong to it. Whenever the Species are numerous, they are subdivided. Consider, then, with which of these subdivisions it agrees; and having determined that, compare it with the several Specific Characters. Your plant will probably agree with some one of these.

If you still are in doubt, guided by the references to figures which follow the Specific Character, turn to such figures as you poſseſs; and, to make the point still more certain, compare your plant with the descriptions which follow the references to figures; for these will remove many an existing doubt, and obviate many a poſsible mistake.

If the plant in question be any remarkable *Variety*, you will probably find it introduced after the additional descriptions mentioned above.

Sixth. Make it an invariable rule, not to pass over a single term, the precise meaning of which you do not thoroughly understand, without consulting the Dictionary. By this mean you will very soon be able to do without consulting it at all.

Seventh. When you gather plants for examination, collect a considerable number of the Flowers, and if poſsible, some just opening, others fully expanded, and others with the Seed-veſsels almost ripe; take care also to gather at least one Specimen of the plant as perfect and as entire as poſsible.

It was thought neceſsary to give a variety of examples for investigation. 1. Because only some of them are to be found at any one season. 2. Because plants common in one Country are not equally common in all. 3. Because the Student is not supposed previously to be acquainted with many plants, and such as he does know are probably only a few of the more common kind. 4. He is not desired to examine and compare *all* the examples: perhaps it will be better he should sometimes try his strength, by examining unknown Flowers which he may pick up in his walks.

Explanatory Examples.

EXAMPLE I.

LIGUSTRUM, (Privet.)

The Privet is a shrub common in hedges and shrubberies in many parts of England. It generally bloſsoms in June, and its bloſsoms are white. Let us suppose a branch of it in bloſsom before us: that we are ignorant what plant it is; and are required to investigate it. We look into several of the Bloſsoms, and find 2 Stamens in each. This circumstance informs us it belongs to the Claſs Diandria. Turning to the beginning of that Claſs in the second volume, we find it contains two Orders, and that the Orders depend upon the number of Pistils: therefore looking again at the Flowers, we find 1 Pistil in each: so that our plant belongs to the Order Monogynia.— We find this Order subdivided into eight parts; and, observing what these subdivisions depend upon, see that in our specimen the Bloſsom is formed of one *regular* Petal fixed beneath the Germen. These circumstances correspond only with the first subdivision, which subdivision contains only one Genus; so that there can be no doubt but the plant is a Ligustrum. We find too that the Bloſsom is cloven into four parts, and that it is succeeded by a Berry *containing* 4 Seeds. Looking therefore to the Genus Ligustrum, in this volume, we compare it with the generic description, and have the satisfaction to find it agree with that. Being now pretty certain of the Genus, we look forwards to the Species, and as there is only one Species, we soon determine that it must be the Ligustrum vulgare of Linnæus, or the common Privet.

EXAMPLE II.

ARUN'DO. (Reed.)

Upon the banks of rivers, in wet ditches, and upon the borders of pools the Reed is sufficiently common. It is a sort of large graſs, five or six feet high, and flowers in June. Having gathered a specimen of this, we proceed to examine it systematically. At first sight we observe that the Flowers grow in panicles, and that each Flower contains 3 Stamens. We therefore turn to the beginning of the third Claſs, and find *that* Claſs divided into three orders, which depend upon the number of Pistils.* Each of our flowers contains 2 Pistils, which brings us to the Order Digynia. This Order is subdivided into four parts. The 1st subdivision contains the plants with Flowers scattered, or irregularly disposed, *one* only in each Calyx. Our plant agrees with the first circumstance, but not with the last, for we find *five* flowers in each Calyx. The 2d subdivision contains only 2 flowers in each Calyx; therefore we paſs that over, and come to the 3d, with scattered flowers, and *several* in each Calyx. Before we proceed further, we just look at the 4th and last subdivision, but finding those *flowers* in form of a Spike on a long and slender Receptacle, we immediately recur to the 3d subdivision. This subdivision contains 6 Genera, and we compare the Characters of each with the plant in hand. The want of an Awn, and the woollineſs at the base of the bloſsoms, determines us to call it Arundo. Turning therefore to the Genus Arundo, we compare it accurately with the Generic description, and find it correspond with it. But as the parts constituting the Flowers of Graſses are frequently very minute, we make use of the Botanical Microscope and the Diſsecting Instruments, to display them more clearly to the eye;* and likewise take the advantage of comparing them with the figures in the plate of Graſses. Having determined it to be an Arundo or Reed, it remains for us to ascertain the Species. We see that only four species of Arundo are natives of Great Britain; and the circumstances of the five Florets in each Calyx, added to the flexibility of the Panicle, which we had observed whilst growing to be waved about with every wind, leave us no room to doubt that it is the Arundo phragmites of Linnæus, or the common Reed.

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* N. B. Once for all, let it be observed, that the Student should accustom himself to read over very attentively the Introduction to the Claſses, until he be perfectly acquainted with the constitution of each, and the exceptions which are most likely to involve him in difficulties.

EXAMPLE III.

PLANTA'GO. (Plantain.)

The Plantain flowers in June and July. It is very common in mowing Graſs, and on the sides of roads. It is frequently stuck in the cages of Linnets and Canary Birds, who are fond of the seeds. Upon examining a specimen of this, we find that each flower contains 4 Stamens, nearly of the same length; therefore we refer it to the fourth Claſs. We find this Claſs contains 4 Orders, dependent upon the number of Pistils. Each of our flowers contains only *one* Pistil, and therefore belongs to the first Order. This Order admits of ten subdivisions. The specimen we have, contains Bloſsoms of *one* Petal; and this Petal is fixed *beneath* the Germen. From these circumstances we look for it in the third subdivision, and finding by cutting acroſs the Seed-veſsel, that it is divided into 2 † cells, we conclude that it is a Plantago. We now compare it with the Generic description, and finding it agree, we try to determine the species. In the 2d volume we find there are five species of Plantain, natives of Britain. These species are not subdivided, therefore we begin with the first; the Plantago major; but the leaves are not egg-shaped; nor are the stalks cylindrical. The Plantago media, which is the second, agrees pretty well; but the leaves are not pubescent, nor is the spike of Flowers cylindrical. With the third species, it agrees in every particular; therefore we call it the Plantago lanceolata of Linnæus, or the Ribwort Plantain.

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* N. B. The Botanical Microscope and Diſsecting Instruments are figured in Plate XII. They may be had of the Publishers, or of the Country Booksellers, price 15s. This Microscope is now in a form more convenient for the Pocket, and is at the same time made to stand more steady when in use.

† To judge whether a Capsule consists of one or more Cells, the best method is to cut it through horizontally with a sharp knife, then carefully to pick out the seeds, leaving the dividing membranes entire. If it be very minute, cut off a thin slice horizontally, place it on the stage of the microscope, view it through the magnifier, and at the same time diſsect it with the instruments.

EXAMPLE IV.

BE'TULA. (Birch.)

The Birch is a tree very generally known. The flowers are disposed in Catkins, which appear in April and May. Some of these Catkins contain only Stamens within their Scales, and others on the same tree only Pistils. In the former, each floret contains 4 Stamens, and in the latter 2 Pistils. These circumstances direct us to the Claſs Tetrandria, and to the Order Digynia. This Order contains 4 Genera, the second and third of which bear the Male and Female flowers in separate Catkins, as we had before observed to be the case in our plant. An attention to the other parts of the characters induces us to believe it a Betula, and a comparison with the Generic description, removes every poſsible doubt. The Species are only three, and the shape of the leaves decides us to call our plant the Betula alba, or common Birch Tree.

EXAMPLE V.

LONICE'RA. (Honey-suckle.)

This plant is common in our hedge-rows, and is very universally known; but let us suppose a person, who never saw it before, struck with the beauty and the fragrance of its bloſsoms, carrying a piece of it home for examination. Finding 5 Stamens in each flower, and the Anthers not united, he refers it to the fifth Claſs. The Orders in that Claſs being determined by the number of Pistils, he knows it belongs to the Order Monogynia, for he observes only one Pistil in each flower. This Order is subdivided into seven parts. The want of the 4 *naked Seeds*, and the ROUGH LEAVES, immediately determine him to reject the 1st subdivision. The *bloſsom* being *fixed beneath the Germen*, not corresponding with his flower, he rejects the 2d, and paſses on to the 3d subdivision, where he finds (3) *Flowers of* 1 *Petal superior ; and the Seeds in a veſsel.*

This Flower consists of 1 Petal, and this Petal is fixed *superior* to, or *above* the Germen. This subdivision containing 4 Genera, he observes the 3 first have Capsules ; but in the last the Seed-veſsel is a Berry with 2 Cells ; this circumstance, added to the inequality of the Bloſsom, and the knob at the top of the Pistil, induces him to believe it to be a Lonicera. He looks for the Generic description, and comparing the flower with that, is confirmed in his opinion. Under this Genus he finds only two Species ; he compares it with the Specific Character of each, and readily determines it to be the Lonicera Periclymenum, or Wood-bine Honey-suckle. A still more attentive examination will now convince him of the propriety of the remark subjoined to the Generic description.

EXAMPLE VI.

DAU'CUS. (Carrot.)

We select this as an example of the *Umbelliferous* or RUNDLE-bearing plants. *(See the introduction to the 5th Claſs.)*

The 5 Stamens with Anthers not united, and the 2 Pistils, evident in each Floret, determine us to look for it in the Order Digynia, of the 5th Claſs. This Order admits of four subdivisions. (1.) *Flowers incomplete.* The Genera here do not at all accord with our plant ; Xanthium has the Male and Female flowers separate ; the Ulmus bears a dry berry, and a Calyx of 1 leaf ; the Humulus has the flowers Male and Female on different plants ; and the other five Genera have only one seed in each flower.—2. *Flowers of* 1 *Petal ; beneath.* But our plant has five Petals ; therefore we go to the 3d, *Flowers of* 5 *Petals ; beneath.* The Florets in hand have 5 Petals, but the Petals are not placed *beneath* the Germen. This subdivision contains only a reference to the Staphylea ; therefore we proceed to the 4th, *Flowers of* 5 *Petals ; mostly of* 2 *Seeds.* UM-

BELLIFEROUS. All these circumstances agreeing with the plant before us, we must look for it here; but observing that this subdivision of the Order is farther divided into Plants that have the Involucrum *both general and partial;* into plants with the Involucrum *only partial;* and into plants *without any* Involucrum; we examine the specimen, and find an Involucrum to each Uumbel or Rundle, and likewise an Involucellum to each Umbellule, or Rundlet. The unequal size of the Petals; the winged Involucrum, and the prickly Seeds, agreeing with Daucus, we turn to that Genus. Finding our plant agree with the Generic description, we readily know it to be the Daucus Carota, or Wild Carrot.

EXAMPLE VII.

GALANTHUS. (Snow-drop.)

The Snow-drop, though not frequent in a wild state, is to be found in almost every garden, and is among the first of our spring flowers. When we look at it attentively, the first circumstance which strikes us is the want of a Cup, but instead of that we find upon the fruit-stalk, a sheathing substance, which covered the bloſsom in its infant state. The 6 Stamens direct us to the Hexandria Claſs, and the single Pistil fixes us to the first Order of that Claſs. This Order is subdivided into,

(1.) *Flowers with a Cup and a Bloſsom.*
(2.) *Flowers with a Sheath or Husk.*
(3.) *Flowers naked.*
(4.) *Flowers without Petals.*

The want of a cup, and the presence of the sheath, teach us to expect it in the 2d subdivision, which contains 4 Genera. In the Allium the bloſsom is fixed *beneath* the Germen, but in our plant it is *above* it. In the Narciſsus there is a bell-shaped nectary and 6 petals, but our plant has 6 petals only, and no such bell-shaped nectary. The circumstance of 3 *inner* petals, shorter and notched at the end, is sufficiently observable in our plant, and clearly distinguish it from the Leucojum; so that it can be no other than a Galanthus. The Generic description* agrees with our flower, but there it appears that the 3 inner and shorter petals may be considered as a Nectary. As there is but one species, it must therefore be the Galanthus nivalis, or common Snow-drop.

EXAMPLE VIII.

DAPH'NE. (Mezereon.)

In February the Mezereon is in bloſsom, and, though rarely found wild, is often met with in the garden. Its Stamens being 8 in number, we turn to the Claſs Octandria, and its single Pistil confines our enquiries to the Order Monogynia. This being divided into *complete* and *incomplete* flowers, we conclude that the flower before us belongs to the latter subdivision, because it wants a Calyx. The character of Daphne corresponds with our Flower, and there is no other Genus in that subdivision. The examination of the Generic description, confirms our determination. We find two British Species, but in that before us, the flowers are sitting, and grow *by threes* ; it must therefore be the Daphne Mezereum, or common Mezereon.

EXAMPLE IX.

LYCH'NIS. (Cuckow-flower.)

White or Red Campion ; Batchelors Buttons ; Lychnis: it grows wild in woods and ditch-banks, flowering all summer. After examining several of the flowers, finding 10 Stamens in each, and the Filaments not united ; observing also no vestige of any Pistil, we begin to suspect that it is one of those plants in which the Stamens and Pistils are contained in *separate* flowers, and upon *distinct* plants. In this state of doubt we go to the place where the plant was gathered, and, after examining several, at length find that the Flowers containing Stamens, and the Flowers containing Pistils, do grow upon *distinct* plants. Directed by the number of Stamens, we therefore turn to the Decandria Claſs, and finding the Orders of that Claſs founded upon the number of Pistils, we look for it in the Order Pentagynia, 5 Pistils being the number we count in the Female Flowers. This Order contains 7 Genera, the first three of which have 5-celled Capsules; but in the Female Flower beore us, the Germen cut a-croſs, or the Capsule, if we happen to have got a ripe one, appears to have only one cell. Cerastium and Spergula are mentioned to have a five-leaved Calyx, whilst the flowers before us have a Calyx of one leaf. They must therefore be referred either to Agrostemma, or to Lychnis. But the difference between these two Genera is not very obvious in the artificial characters now before us; we therefore turn to the Generic descriptions of Agrostemma and Lychnis; compare all the parts of the flower carefully with both these, and find reason to believe it a Lychnis. The Obs. subjoined to that Genus support this conclusion, and amongst the species of Lychnis we find the Lychnis dioica, with the Stamens and Pistils on different plants.

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* N. B. Until a little familiarized with the disposition of the System, the learner is desired to consult the Index at the end of the first volume, to find the Generic descriptions ; and the General Index at the end of the third volume to find the Species.

EXAMPLE X.

PY'RUS. (Pear.)

Finding about 20 Stamens in each flower, we conclude that it belongs either to the 12th, or to the 13th Claſs.

The introduction to the 12th, or Icosandria Claſs, informs us, that the number of Stamens alone, will not sufficiently distinguish it from the Claſses, Dodecandria and Polyandria; we therefore attend to the directions there delivered, and finding in our Plant that the Calyx is formed of a single concave Leaf; that the Petals are fixed to the *sides* of the Calyx; and that the Stamens do not stand upon the Receptacle, we conclude that we are at the right claſs; and seeing each Flower furnished with 5 Pistils, we look for the Genus under the Order Pentagynia. This Order contains three Genera. In the last Genus the Calyx is fixed beneath the Germen, but in our Plant it is above the Germen. In that and in other respects, it corresponds with the two first Genera. The Calyx being cloven into 5 parts, and the Bloſsom being composed of 5 Petals, are circumstances common to both. But the fruit of the first is a Berry, containing 5 seeds, and the fruit of the second is a Pomum, or Apple, with 5 Cells, and *many* seeds. Hence it appears that our plant is undoubtedly the Pyrus; and turning to the Generic description, we are confirmed in this opinion. We next compare it with the only two British Species, and are soon enabled to determine whether we have got the Pyrus communis, or the Pyrus malus, i. e. the Pear or the Apple.

EXAMPLE XI.

RANU'NCULUS. (Crowfoot.)

The beautiful shining yellow Bloſsoms of Crowfoot, and the frequency of it in pastures in the months of June and July, will probably attract our notice; especially as cattle leave it untouched, even when the pasture is bare. We therefore collect some of it; and finding a great number of Stamens in each Bloſsom, we refer it to the Polyandria Claſs. The introduction to this Claſs tells us, that the Stamens stand upon the Receptacle, and not upon the Cup or the Bloſsom. As this appears to be the case, we next examine the Pistils, and finding them more than can readily be counted, we refer to the Order Polygynia. This Order includes eleven Genera. Of these only Sagittaria, Ranunculus, and Adonis, have a Cup to the Flower. The first eight that occur have no Calyx; but our Flower has a Cup of 5 Leaves. It is clear then, that it must be one of these three. Sagittaria it cannot be, because there the Flowers are Male and Female on the same plant, but those before us are all Hermaphrodite. Upon an accurate examination, we observe a little Pore or Nectary, within the claw of each Petal, and governed also by the number of Leaves forming the Cup, and of Petals composing the Bloſsom, we turn to the Generic description of the Ranunculus. Quite satisfied about the Genus, we observe the Species are numerous, and arranged according as the Leaves are *divided*, or *not divided*. In our specimen the Leaves are divided. We then compare it with each of the Species, and, from its open or expanded Calyx, its cylindrical Fruit-stalks, its Leaves with 3 divisions, many clefts, &c. find it to be the Ranunculus acris, or upright Crowfoot.

EXAMPLE XII.

A'RUM. (Cuckow-pint,)

Or Wake-robin; or Lords and Ladies. Not unfrequent in stiff soils. It generally grows in rough shady places, and at hedge bottoms. It flowers in May.

There is something so very peculiar and unusual in the structure of this plant, that we find ourselves at a loſs how to set about the investigation of it. What shall we call this long purplish substance which stands upright within the sheathing conical Calyx? We remove the Sheath to inspect the lower part, and there we find this purple substance surrounded at its base by a number of Germens. It must therefore be a sort of a Fruit-stalk, or a Receptacle of an unusual length. On a further examination we observe a number of hair-like fibres, or threads, but without any Anthers, and between these and the Germens, we perceive a number of Anthers without any Filaments.

As the Anthers are numerous, we turn to the Claſs Polyandria, and the Germens being more than 6, we look in the Order Polygynia. Zostera and Arum are the only Genera in which the existence of a Bloſsom is not mentioned; and as our plant shews nothing like a Bloſsom, it must be one or other of these. The conical Sheath of one Leaf, and indeed all the other circumstances mentioned, assure us that it is an Arum. The Generic description, and the subjoined observations, fully explain the structure of this wonderful and extraordinary plant. The shape of the leaves accords with the Specific Character, and we pronounce it to be the Arum maculatum.

EXAMPLE XIII.

LA'MIUM. (Archangel,)

Or White or Red Deadnettle. It grows every where upon ditch-banks, amongst rubbish, and in orchards.

Upon opening the Bloſsom we observe 4 Stamens, and as 2 of the Stamens are considerably longer than the other two, we expect to find it in the Claſs Didynamia. After reading the introduction to that Claſs, we have no doubt of having claſsed it right. We then observe that the two Orders in this Claſs are characterised from the Seeds being *naked*, (GYMNOSPERMIA;) or *covered*, (ANGIOSPERMIA.) In our specimen we find 4 *naked* Seeds at the bottom of the cup: so that it belongs to the first Order. This Order admits of two subdivisions, founded upon the clefts of the cup: our plant arranging under cups with 5 clefts, we carefully compare it with each of the Generic characters; and, after some difficulty, guided by the bristle-shaped tooth on each side the mouth of the Bloſsom, we suspect it may be a Lamium; though we are not certain but it may be a Galeopsis. We therefore compare our plant with the Generic descriptions of both; and further aided by the Eſsential Generic characters at the head of the Species, we find that it is a Lamium. Upon reading the characters of the three British Species, we are soon determined by the taper-pointed, heart-shaped Leaves, &c. to call it the Lamium album, or White Archangel.

EXAMPLE XIV.

CHEIRANTHUS. (Wall-flower.)

This plant is very generally known. It grows wild upon old walls, and is frequently cultivated in gardens.

Carefully remove the Calyx and the Petals, and you will find 6 Stamens; two of which are shorter than the other 4. It belongs therefore to the Claſs Tetradynamia. The Orders of this Claſs depend upon the form of the Seed-veſsel; and, after examining the specimen, you neceſsarily refer it to the first subdivision of the second Order; for the Seed-veſsel is a *long* Pod, and the leaves of the cup stand upright and close to the Bloſsom. It is possible you must diſsect several Flowers before you can ascertain the Genus; for this Claſs, like the preceding, is composed of a natural aſsemblage of plants, whose flowers bear a strong resemblance to each other, and the differences, when this is the case, are not very obvious. At length, however, the small glandular substance on each side the base of the Germen, determines you to refer it to Cheiranthus. Upon a comparison with the Generic description, you find it accurately described; and the shape of the leaves, &c. put it beyond a doubt that it is the Cheiranthus Cheiri, or Wall July-flower.

EXAMPLE XV.

ALTHÆ'A. (Marsh-mallow,)

Or Wymote. It naturally grows in salt marshes, but upon account of its medical uses, it is cultivated in most gardens, and is pretty generally known.

Upon examining the flower, we find the Stamens numerous, and the filaments all united at the base. We recollect that this circumstance characterises the flowers of the Claſs Monadelphia. We find the Orders in that Claſs depend upon the number of Stamens; and observing that the flowers before us contain more than 10, we must expect to find the plant in the Order Polyandria. Our plant having many Pistils, we refer it to the 3d subdivision. The three Genera contained in that subdivision nearly resemble each other; but the outer cup being cloven into 9 parts, we *must* suppose it an Althæa. Under that Genus we find only one Species, and as our plant agrees both in the Generic and Specific character, we pronounce it to be the Althea officinalis, or Marsh-mallow.

EXAMPLE XVI.

SPAR'TIUM. (Broom.)

From the appearance of the Stamens, which are all united by the Filaments, we should be at a loſs whether to expect this plant in the Monadelphia, or in the Diadelphia Claſs; but the butterfly-shape of the Bloſsom determines us to the latter. After reading the introduction to that Claſs, we observe that the Orders depend upon the number of Stamens. The flowers of our plant contain 10; and, as the Filaments are *all united*, we are at no loſs to see that it belongs to the first subdivision of the Order Decandria. We now compare it with the characters of the different Genera; but, as the Genera of this Claſs are a natural aſsemblage, and, from their similarity, admit of one *general* Natural Character, the differences between each Genus must depend upon minute circumstances, and therefore demand a good deal of attention. At length we perceive, from the hairy Summit, and the Filaments clipping the Germen closely, that it must be the Spartium. Comparing it therefore with the Generic description of Spartium, and still further confirmed by the Eſsential Character, we find it must be the Spartium scoparium, or common Broom; which happens to be the only English Species belonging to that Genus.

EXAMPLE XVII.

LEONTODON. (Dandelion,)

Or Piſs-abed. This plant is in Bloſsom during great part of the spring and summer; it grows in pastures, road sides, and the uncultivated parts of gardens. At the first view we perceive its structure to be very different from any we have examined before; we hardly know what to call Stamens, or what Pistils. The fact is this: it is a true Compound Flower, or a flower formed of a number of little flowers (or florets) sitting upon one *common* Receptacle, and inclosed by one *common* Calyx. Turning to Compound Flowers and Florets in the Dictionary, and reading the explanation of Compound Flowers, with references to the fourth plate, we soon attain a true idea of the matter; and therefore separating one of the Florets, and examining it carefully, we find 5 Stamens with the Anthers united; and the Pistil paſsing through the cylinder formed by the union of the Anthers. We therefore refer it to the Claſs Syngenesia. By carefully studying the introduction to that Claſs, we understand still more clearly the nature of Compound Flowers, and the Florets which compose them. We learn too how the Orders are constituted; and, upon examining the Flower before us, and finding that all the Florets are furnished with Stamens and Pistils, we perceive that it belongs to the first Order. From the shape of the Bloſsoms of the Florets, which are all long and narrow, we know that we must look in the first subdivision of that Order. Perceiving that the Receptacle is an important circumstance in the character of Compound Flowers, we pull off all the Florets in one of the Flowers, and expose the Receptacle to view. We find it naked; *that is*, not beset with chaffy or bristly substances. We find too, a sort of down adhering to the Seeds;* and observe the scales of the Calyx laid one over another like the tiles on a roof, the outer scales loose, flexible, and turned back. These characters corresponding pretty well with the Leontodon, we fix upon that as the Genus. Now we look forward to the Generic description for further information; with this it perfectly agrees, and in the OBSERVATIONS subjoined, we are told that in the Leontodon Taraxacum the Down of the Seed is supported on a long pedicle, which we had already remarked in the flower before us. We now read the characters of the different Species; and, from the deep notches in the leaves, judge our plant to be the Leontodon Taraxacum, or common Dandelion.

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* The Down attached to the Seeds in the Compound Flowers is either formed of *simple* hairs, or of hairs set with other finer hairs; in the

It will be very proper for the learner thus to examine several more Genera of this Claſs, as the Coltsfoot, the Burdock, the Thistle, the Tansy, the Daisie, and the Groundsel; for, by doing this, he will soon overcome the difficulties which present themselves; and when any of the books are at hand which are mentioned in Italic print, after the Specific Character, it will be satisfactory to turn to them, and to compare the plant in question wth the figures referred to.

It may not be amiſs for him to begin with a Sunflower, which, though not an English plant, and therefore not to be found in this book, may yet, from the large size of its Florets enable him to form a good idea of the structure of Compound Flowers in general.

By paying a proper attention to the nature of Compound Flowers, we soon learn to distinguish them from double Flowers; and when by accident or cultivation any of the true Compound Flowers become double, we shall always find it depends upon the multiplication of some of the parts, and the exclusion of others.

These examples will, it is supposed, afford sufficient instruction to the learner, but, if he wishes for others, he may examine such plants as are mentioned in the Table of the Claſses.

It still remains to say something of the Cryptogamia Claſs. The plants in that Claſs are not arranged like the other parts

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former case, it is said to be *hair-like*; in the latter it is said to be *feathered*. Now as these circumstances must be attended to, in forming Generic Distinctions, it is neceſsary to apprise the learner, that the Down must be exposed to the air a little time before he can pronounce whether it be hair-like, or feathered; for whilst it is moist in the flower, the lateral hairs often lie so close as not to be visible.

of the system, and therefore cannot be investigated in the same manner. We can only recommend a careful perusal of the Introduction to the Claſs, and an intimate acquaintance with the terms. This being done, the industry of the student cannot fail of its proper reward.

After conducting my Pupils in this familiar manner through the different parts of the System, I must suppose that they no longer stand in need of my assistance, and that they will soon find themselves equal to the investigation of every British plant which may come before them. But this is not all: they will find that the Study of Nature is ever attended with pleasing reflections: that the Study of Botany, in particular, independent of its immediate use, is as healthful as it is innocent. That it beguiles the tediousneſs of the road, that it furnishes amusement at every footstep of the solitary walk, and, above all, that it leads to pleasing reflections on the bounty, the wisdom, and the power of the great CREATOR.

DIRECTIONS

FOR

DRYING AND PRESERVING

SPECIMENS OF PLANTS.

MANY methods have been devised for the preservation of Plants; we shall relate only such as have been found most succeſsful.

First prepare a preſs, which a workman may make by the following directions.

Take two planks of well-seasoned wood, not liable to warp. The planks should be two inches thick, eighteen inches long, twelve inches broad. Get four male, and four female screws;* such as are commonly used for securing sash windows. Let the four female screws be let into the four corners of one of the planks, and corresponding holes made through the four corners of the other plank for the male screws to paſs through, so as to allow the two planks to be screwed tightly together. It will not be amiſs to face the bearing of the male screws upon the wood, with iron plates; and, if the iron plates went acroſs from corner to corner of the wood, it would be a good security against warping. When a preſs is not at hand, the specimens may be dried tolerably well between the leaves of a large folio book, laying other books upon it to give the neceſsary preſsure; but in all cases too much preſsure must be avoided.

Secondly, get a few sheets of strong card pasteboard, and half a dozen quires of large, soft, spongy paper: such as the stationers call bloſsom blotting paper, is the most proper.

The plants you wish to preserve should be gathered in a dry day, after the sun has exhaled the dew: taking particular care to collect them in that state wherein their Generic and Specific characters are most conspicuous. Carry them home in a tin box, which may be made about nine inches long, four inches and a half wide, and one inch and a half deep. Get the box made of the thinnest tinned iron that can be procured; and let the lid open upon hinges. The box should be painted, or lacquered, to prevent it rusting. If any thing happen to prevent the immediate use of the specimens you have collected, they will be kept fresh two or three days in this box, much better than by putting them in water; but the Bloſsoms of some plants are so very delicate, that they shrivel in a very short time, and often before you can well examine them. In this case, put the stems in water, cover the whole with a glaſs bell, like those used in gardens, or the receiver of an air-pump will do; expose them to the sun, and in half an hour, you will find them completely expanded: When you are about to preserve them, lay them down upon a pasteboard, as much as poſsible in their natural form; but, at the same time, with a particular view to their Generic and Specific characters.—For this purpose it will be advisable to separate one or more of the flowers, and to display them so as to shew the Generic character. If the Specific character depend upon the flower, or upon the root, a particular display of that will be likewise neceſsary. When the plant is thus disposed upon the pasteboard, cover it with eight or ten layers of the blotting paper, and put it into the preſs. Exert only a small degree of preſsure, for the first two or three days; then examine it, unfold any unnatural plaits, rectify any mistakes, and, after putting fresh paper over it, screw the preſs a little harder. In about three days more, separate the plant from the pasteboard, if it be sufficiently firm to allow of a change of place; put it upon a dry fresh pasteboard, and, covering it with fresh bloſsom paper, let it remain in the preſs a few days longer. The preſs should stand in the sun-shine, or within the influence of a fire, for nothing is so destructive to the beauty of the Specimens as a long continued dampneſs.* Shrubs and many of the harder perennial plants will lie much neater in the Herbarium, if the bark of the principal Stem be slit up with the point of a sharp knife, so as to allow the inner woody part to be extracted.

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* Wedges of thin well-seasoned wood, paſsing through uprights affixed to each end of the lower plank, and rising through the upper one, have been since found more manageable and efficacious.

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* One of my correspondents aſsures me, that he finds old broad cloth better than paper, for absorbing the moisture of the plants; but I have not had occasion to try it.

When it is perfectly dry, the usual method is to fasten it down with glue, or paste, or gum water, on the right hand inner page of a sheet of large strong writing-paper. It requires some dexterity to glue the plant neatly down, so that none of the gum or paste may appear to defile the paper. Preſs it gently again for a day or two, with a half sheet of bloſsom-paper between the folds of the writing-paper. When it is quite dry, write upon the left hand inner page of the paper, the name of the plant; the specific character; the place where, and the time when it was found; and any other remarks you think proper. Upon the back of the same page, near the fold of the paper, write the name of the plant, and then place it in your cabinet. A small quantity of finely powdered arsenic, or corrosive sublimate, is frequently mixed with the paste or gum-water, to prevent the devastations of insects; but the seeds of Staves-acre finely powdered, will answer the same purpose, without being liable to corrode or to change the colour of the more delicate plants. A little Alum added to the paste makes it keep longer, and a little very coarse brown Sugar dissolved in the gum-water, renders it less brittle when dry. Some Botanists put the dried plants into the sheets of writing-paper, without fastening them down at all, which I think much the most useful way: others only fasten them by means of small slips of paper, pasted across the stem or branches, and others again sew them to the paper with a needle and fine thread.

Another more expeditious method is to take the plants out of the press, after the first or second day; let them remain upon the pasteboard; cover them with five or six leaves of bloſsom paper, and iron them with a hot smoothing iron, until they are perfectly dry. If the iron be too hot, it will change the colours; but some people, taught by long practice, succeed very happily. This is quite the best method to treat the different species of Orchis and other slimy mucilaginous plants.

I am indebted to T. Velley, Esq. of Bath, for the following improved method of drying plants, which, being the result of much experience, cannot but prove acceptable to the practical Botanist.

——" I place the plant when fresh, between several sheets
" of blotting paper, and iron it with a *large* smooth heater,
" pretty strongly warmed, till all the moisture is diſsipated.—
" The flowers and fructification I fix down with gum, upon the
" paper on which they are to remain, and iron them in that
" state, by which means they become almost incorporated into
" the paper in their proper forms. Many colours I have been
" able to fix, which frequently forsook the flowers during the
" gradual and tedious proceſs of sand-heats, and other methods
" which I had before tried.

" Some plants require a more moderate heat than others:
" experience must determine this: and herein consists the
" nicety of the experiment. The forms and colours seem to
" remain more perfect by this mode than by any other I have
" been able to try."——" If the mucilaginous and succulent
" plants do not succeed so well with respect to their colour,
" under the hot smoothing iron, I have always found that they
" failed full as much or more, when preserved by other means.
" The colours of the bloſsoms in the claſs Didynamia, I could
" never fix by a sand-heat. Several of these, as well as of
" the rough-leaved plants, I have preserved tolerably well by
" ironing.

" It is neceſsary to observe, that in compound flowers, or in
" thoſe of a solid and more stubborn form, as the Centaurea,
" &c. some little art must be employed in cutting away the
" under part, by which means the profile and form of the
" flowers will be more distinctly exhibited, provided they are
" to be pasted down."——" After all, it must be remembered
" that a plant, when preserved in a most perfect state, is a
" kind of Hygrometer, and if exposed for any time to a moist
" atmosphere, or laid up in a situation which is not perfectly
" dry, will imbibe a degree of humidity that must soon prove
" injurious to the beauty of the specimen."

Major Velley sent me some plants dried by these means, which are the most beautiful specimens I have seen. The facility of drying plants by ironing, must render this method particularly acceptable to the travelling Botanist.

In addition to the methods of preparing a Hortus siccus already pointed out, I am desired by my friend Mr. Whateley, Surgeon, in London, to insert the following account of a method which he has used with the greatest advantage; and such of my readers as observe his rules, and execute them with adroitneſs, will find their attentions well rewarded.

An Approved Method of Preparing Plants for an Herbarium.

"PREVIOUS to the drying of Plants by this plan, it will be neceſsary to procure the following apparatus:

1. "A strong oak box of the size and shape of those used "for the packing up of tin plates.

2. "A quantity of fine dry and searced sand of any kind, "sufficient to fill the box.

3. "A considerable number of pieces of pliant paper, from "one to four inches square.

4. "Some small flat leaden weights, and a few small bound "books.

"The specimen of any plant intended for the Herbarium, "should be carefully collected when dry and in the height of "its flowering, with the different parts as perfect as poſsible. "and in the smaller plants the roots should be taken up. It "should then be brought home in a tin box well closed from "the air.—The plant should be cleared from the decayed "leaves and dirt, and afterwards laid upon the inside of one of "the leaves of a sheet of common cap paper. The upper "leaves and flowers should then be covered in an expanded "state by * pieces of the prepared paper, which may be placed "in any irregular way, and kept down by the fingers till these "parts of the plant are entirely covered by them: and after "that, let one or two of the leaden weights be placed upon the "papers. The parts of the plant below should then be covered

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* As the beauty of the Specimen depends very much upon this part of the proceſs, each large petal ought to be laid flat separately with a piece of paper, and the utmost care taken that every part of the plant be laid down without folds, which may be done in general in a short time.

“ with the pieces of paper, and likewise with the weights, and
“ thus the whole plant should be laid in its proper expanded
“ form by the same method. The weights should then be
“ carefully removed, and the other leaf of the sheet of paper
“ applied to its opposite one, having the loose pieces of paper
“ and plant between them. After which, one or two of the
“ books should be placed on the outside of the paper, and
“ remain there till as many other plants as are intended to be
“ preserved, have been prepared in like manner.* A layer of
“ sand an inch deep should then be put into the box, and
“ afterwards one of the plants with the books placed upon it,
“ which last should be removed after a sufficient quantity of
“ sand is put upon the paper, to prevent the plant from varying
“ its form. All the other plants may then be put into the box
“ in the same manner, with a layer of sand about an inch thick
“ between each, when the sand should be gently preſsed down
“ by the foot, and the degree of preſsure in some measure
“ regulated by the kind of plants in the box. If they are stiff
“ and firm, as the Holly or Furze, much preſsure is required.
“ If tender and succulent a leſser degree is better, for fear of
“ extravasating the juices, which would injure the colour of the
“ plant; but particular care should be taken to make a sufficient
“ degree of preſsure upon the expanded bloſsoms of
“ plants, that they may not shrivel in drying. The box should
“ then be carefully placed before a fire, with one side a little
“ raised or occasionally flat, as may be most convenient, alternately
“ changing the sides of the box to the fire, twice or
“ thrice a day; or, when convenient, it may be put into an
“ oven in a gentle heat. In two or three days the plants will
“ be perfectly dry. The sand should then be taken out with
“ a common plate, and put into a spare box, and the plants
“ carefully taken out also, and removed to a sheet of writing
“ paper.

“ This method of preserving plants is, from much experience,
“ found preferable to any other, and has every advantage attending
“ it that can be wished; it dries most of them of an
“ exceeding fine natural and durable colour, as well in the

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* Those of the Genus Potamogeton, and such like, ought to be put into the sand without loſs of time and well preſsed, otherwise they are apt to dry too fast and shrivel.

"flowers as leaves. It will be found upon trial, that a different degree of heat is suitable to different plants, the exact "knowledge of which will be easily acquired by a little experience, and that some will dry much better than others. I "have always found the fewer plants there were in the sand at "a time, and the quicker the heat, the better the colours "were. Those plants that have coloured flowers should be "placed uppermost, otherwise their colour will be injured by "the slow diſsipation of the moisture from the others.

"Plants are most fit for future examination when preserved "loose within the paper, and if they are kept in a very dry "room and unexposed to the air, they will preserve their beauty "a great number of years; but it will be neceſsary to inspect "them once a year, to destroy any of the small insects that "may breed among them, and this will be fully sufficient for "their preservation."

In whatever method the plants are dried, the precautions mentioned in the last paragraph of Mr. Whateley's account, are indispensable to their preservation. They may be most conveniently kept in a Cabinet made for the purpose, with the drawers open in front, excepting only a shallow ledge at the bottom of each; placing the species of each Genus together, and keeping each Claſs separate.

In the Claſs Cryptogamia, a different management may be adopted with advantage, except in the FILICES (or Ferns) and these may be dried and disposed as the plants of the other Claſses; but the MUSCI (Moſses,) which constitute the second order of the Cryptogamia claſs, being very numerous, and mostly very minute, may be kept in papers folded to the octavo size. It is sufficient to place them in the papers, and to give them a moderate preſsure for a short time. They dry readily and are not apt to spoil.

The preservation of the ALGÆ, or third Order of this Claſs, requires some further directions.

The LICHENS require no care in drying; they should not even be preſsed, or put into papers, but placed in shallow close drawers which are divided into small partitions.

The CONFERVÆ, and the finer leaved FUCI, cannot be advantageously laid down in the common way, but should be floated in a large shallow dish of water, so as to separate and expand their delicate branches. A stiff piece of writing paper may then be made to slide under them, and, with a little addreſs, the paper may be drawn out of the water so as to bring out the plant upon it, in its beautiful and expanded state. If the whole be then dried between blotting papers, under a gentle preſsure, the plants will in general adhere to the writing paper so as to preserve their form. The Sea weeds must all be soaked in large quantities of fresh water, so as to extract the salt before they are laid down to dry. If the collector has not time to examine and lay them down while at the sea side, nothing more should be done at them, than allowing them to dry moderately in the open air, and tying them up loosely in strong brown paper. They may thus be carried without injury to any distance; and when macerated in fresh water, will expand as fully as before, so as to admit of their being examined and preserved at leisure.

The Fungi (Funguſses) may be preserved pretty well by the method described in the 2d volume of the Transactions of the Linnean Society, at page 263, to which I might refer the Reader; but as a longer continued attention to the subject has given rise to some little improvement of the method, since that memoir was communicated, I shall subjoin the following directions:

Take 2 ounces of vitriol of copper reduced to powder; pour upon it about a tea cup of cold water, stir them with a piece of stick, or a quill, for about a minute, then pour off the water and throw it away.

On the remaining vitriol pour a pint of boiling water, and when the whole is diſsolved and grown cool, add to it half a pint of rectified Spirit of Wine. Filtre it through paper; keep it in a bottle closely corked, and call it the *pickle*.

To 8 pints of pure spring water, add a pint and a half of rectified Spirit of Wine. Keep this in corked bottles, and call it the *stronger* liquor.

To 8 pints more water, add one pint of Spirit of Wine, and call it the *weaker* liquor.

Be provided with a number of wide-mouthed glaſs jars, of various sizes, capable of holding from 2 ounces to 2 pints; all very well fitted with corks.

Whatever Fungus, whether Agaric, or Boletus, &c. you wish to preserve, should be suffered to lie upon your table as long as it can be trusted without danger of its decaying, so as to allow some part of its moisture to evaporate; the thick and fleshy plants should lie the longest, but the deliquescent ones, and those which are very thin and delicate, should be put into pickle almost immediately after they are gathered.

Pour some of the *Pickle* into a spare jar, and into this immerge the specimens to be preserved. The Specimens should remain in the pickle from three hours to three days, according to their bulk and fleshineſs. Then remove each specimen into the jar in which it is to be kept, suiting the size of the Jars to the size of the Specimens. If they are of the large, juicy, and fleshy kind, fill up the jar with the *stronger* liquor, but the *weaker* will suffice for the smaller and thinner plants. Whichever liquor be used, the jar must be quite filled with it, and immediately corked very tight. Cover the cork and the top of the jar with Venice Turpentine, by means of a painter's brush. In three or four days the turpentine will become nearly dry, and then tie a piece of wetted bladder very tight over the top of the jar. These precautions are necessary to prevent the acceſs of air, and the evaporation of the liquor: because, if either of these happen, the specimens will soon be spoiled. The Boleti are in general more difficult to preserve than the Agarics, and such of either as abound with a milky juice, are apt to foul the liquor, which must then be changed. Moſses and Lichens may be preserved in great perfection, by this method of pickling.

A

DICTIONARY

OF

BOTANICAL TERMS.

THE following Alphabetical List of the Terms employed by Linnæus, as well as of those used in this work, and by other modern Authors, will be extremely useful to the learner, as he will thus be enabled to understand other botanical books which he may wish to consult.

The ladies too, who, in spite of the obstacles attendant upon a dead language, often have recourse to Linnæus in the original Latin, will find their researches facilitated by it.

ABBREVIATUS, see short.
ABORTIVI (flosculi) abortive. See barren.
ABRUPT (abruptus) when a winged leaf ends abruptly; i. e. without a tendril or a little leaf. Pl. 8. fig. 53.
ACAULIS, stem-leſs.
ACEROSUS, chaffy.
ACICULARIS, needle-shaped.
ACINACIFORMIS, scymetar-shaped.
ACINI, granulations.
ACORN, the seed of the Oak.

N. B. The plants referred to in this Dictionary, for the sake of illustrating the different *Terms*, are for the most part natives of this island, and are quoted by their most common English names, because the reader who recollects them will immediately, and without further trouble, be able to form the right idea which the term is intended to convey; and as these names are inserted in the Index, he may easily turn to them. The instances taken from exotic plants, are chiefly such as are cultivated in almost every garden, and are introduced only when an English plant was wanting to which the term could be properly applied, or when it was thought that the exotic was more commonly known, and more easily attainable than the native.

Acotyledones, seeds without lobes, and of course, when they vegetate, they produce no seminal leaves.

Aculeatus, prickly.

Aculei, prickles.

Acuminatum, (fol.) tapering to a point.

Acute (acutus) tapering gradually to a slender, but not a prickly or a thorny termination, as the leaves of the *Jessamine*, or the segments of the cup of the *Primrose*. See pl. 3. f. 10; or pl. 7. f. 40.

Acutus, acute.

Adnatus, connected.

Adpressus, contiguous, preſsed to, or laid to.

Adscendens, ascending.

Æqualis, equal.

Aggregate (aggregatus) when a number of little flowers or florets, are so disposed as to form one compound flower: all of them either inclosed within one common calyx, or situated upon one common receptacle; so that none of them can be taken away without destroying the uniformity of the whole. Thus, the flowers of *Thrift*, *Parsley*, *Teasle*, *Scabious*, *Daisie*, are aggregate; several small flowers or florets, combining to form one large flower.

Air-Bag, (folliculus) a distended bladder-like seed-veſsel, opening on one side, as in the *Periwinkle*, or *Bladder-Sena*. It is also used to signify other kinds of distended air-veſsels.

Alæ, wings.

Alatus, winged seed, stem, or leaf-stalk.

Alburnum, a soft white substance, found in trees, between the inner bark and the wood, composed of layers of the former, which have not yet attained the solidity of the latter. In this state, dealers in timber call it the sap.

Algæ, the name of the third order of the claſs Cryptogamia.

Alternate (alternus) branches, or leaves, or flowers, springing out regularly one above another, as the leaves of *Borrage*, or *Chequered Daffodil*. Pl. 9. f. 3. (*d. d. d. d. d.*) Pl. 8. f. 54.

Alveolatum, see favosum.

Amentum, catkin.

Amplexicaulis, embracing the stem.

Anceps, two-edged.

Androgyna (planta) bearing some flowers with stamens only, and some with pistils only, on the same root, without any mixture of such as are hermaphrodite. Of this we have examples in the *melon* and *cucumber*.

Angiospermia, seeds in a capsule, as in the second order of the claſs Didynamia.

Angular (angulatus) stem, &c. having edges or corners; opposed to cylindrical. A stem or stalk may have 1, 2, 3, 4, or more angles or corners. The *White Archangel* hath 4.

Angular Capsule, as in *Flower de Luce* or *Flag*.

Angustifolius, narrow-leaved.

Annual (annuus) living only one year; as the *Larkspur*.

Annulus, ring.

Annuus, annual.

Anomalous (anomalus) irregular, subject to no certain order.

Anther, or Tip (anthera) a part of a stamen fixed upon the filament, and containing the pollen. In *Dogs Mercury* it hath one cell; in *Hellebore* two; in *Orchis* three; in *Fritillary* four; see stamen. Pl. 3. f. 2. (*c. c. c. c. c. c.*) f. 5. (*b. b. b. b. b. b.*) f. 6. (*h*).

Anthera, Anther.

Apetalus, without a petal.

Apex, the point, end, or termination of a leaf, &c.

Aphyllus, leafleſs.

Apophysis, excrescence.

Appendiculatus, appended, mostly applied to expreſs an additional small leaf.

Approaching, see converging.

Approximatus, near to, or near together.

Arachnoideus, cobwebbed.

Arborescens, arborescent, gradually becoming firm and woody.

Arboreus, tree-like; having a permanent woody stem.

Arcuatus, bowed.

Arillus, seed-coat.

Arista, awn.

Aristatus, awned.

Arm (brachium) see measure.

Arma, weapons of defence.

Arrow-shaped (sagittatus) Leaf, shaped like the head of an arrow, as the leaves of *Sorrel;* the *Small* or *Great Bindweed*. Pl. 7. f. 13.

———————— Anthers, as in the *Crocus*. *Elder*.

———————— Stipulæ, as in the *Pea*.

Articulatus, jointed.

Articulus, joint.

Ascendens, or Adscendens, ascending.

Ascending (ascendens) growing first horizontally, and then bowed upwards. It is applicable either to *Leaves*, to *Stalks*, to *Stems*, as in spiked *Speedwell*, or to *Stamens*, as in all the *Speedwells*. See the *Stamens* next below (*a*) in pl. 1. f. 8.

Asper, rough.

Asperifolia, rough-leaved.

Assurgens, rising.

Attenuatus, growing slender.

Auctus, Calyx, when the Calyx has the addition of another smaller Calyx.

Auriculatus, ear-shaped: also having an appendage.

Avenis, without veins.

Awl-shaped (subulatus) slender, and becoming finer towards the end, like an awl. Pl. 7. f. 8. Pl. 5. f. 15. (*a*) as the leaves of *Rock Stone-crop*.

———— **Filament**, as in *Crocus. Borrage. Daffodil. Hawthorn.*

———— **Seeds**, as in *Shepherd's Needle.*

Awn (arista) the slender sharp substance growing to the valves of corn or grass, and frequently called a beard. It is remarkable enough in *Oats* and *Barley*. It is sometimes used to signify a sharp point terminating a leaf, &c. Pl. 2. f. 21. (*b. b.*) f. 23. (*b. b.*)

Awned (aristatus) having an Awn.

Awnless (muticus) without Awns.

Axillary (axillaris) at the base or bosom of the leaves, or branches, on the upper and inner side.

Bacca, berry.

Bacciferus, bearing berries.

Barbatus, bearded.

Bark (cortex) the universal covering of the stems, roots, and branches of Vegetables. It is generally spoken of as *inner* and *outer*. A Bloſsom is an expansion of the *inner*, and a Calyx is a continuation of the *outer* bark.

Barren (masculi; abortivi) **Flowers** or **Florets**, such as produce no perfect seeds. The barren flowers are generally such as have Stamens, but no Pistils; these are also called male flowers. Flowers which have only Pistils, are sometimes barren, owing to the absence of other flowers which bear the Stamens. In the Umbelliferous flowers (Claſs V. Order II.) it is not uncommon to have several of the florets barren, though they are furnished both with Stamens and Pistils; perhaps owing to some imperfection in the Pistils; but future observation must determine this matter. Pl. 1. f. 21. *a*; 22. *a*. 23.

Base (axillaris) that part of a leaf, &c. nearest to the branch or stem.

—— of the **Leaves** or **Branches**. Flowers or fruit-stalks are often said to grow at the *base* of the leaves, or the branches; that is, when they are placed at the bottom of a leaf, or branch, and on the inner side, where it joins to the stem. The same as Axillary. Pl. 9. f. 5. (*m.*) the fruit-stalks of the *Common Pimpernel*; the *Great Periwinkle*, and the *Flowers* of the *Common Calimint*, are examples.

Battledore-shaped (spatulatum). See pl. 8. f. 64.

Beaded (granulatus) consisting of many little knobs connected by small strings. As the root of the *White Saxifrage*.

Beak, or Bill (rostrum) a long projecting appendage to some seeds, like the beak of a bird; remarkable in the *Geránium.* See pl. 5. f. 15.

Bearded (barbatus) beset with straight parallel hairs.

Bell-shaped (campanulatus) the idea this term is intended to convey cannot well be mistaken: examples of it occur in the *Cup* of the *Cherry;* in the *Bloſsoms* of the *Convolvulus* or *Lily of the Valley;* and in the *Nectary* of the *Wild Daffodil.* Pl. 5. f. 1. (*a*) Pl. 4. f. 2. 3. 4. 5.

Bellying (ventricosus) distended in the middle.

Beneath (inferus) a Blossom is said to be *beneath,* when it includes the Germen, and is attached to the part immediately below it, as the bloſsom of *Sage; Borrage; Convolvulus; Polyanthus.*

——— a Germen is said to be *beneath* when it is placed below the attachment of the bloſsom, and therefore not included within it; as in the *Honey-suckle; Currant; Hawthorn.*

Bent (cernuus) Fruit-stalk; so much bent that the flower faces the earth, and so stiff that it cannot be straightened without breaking: as in *Crown Imperial.*

Bent inwards (inflexus) as the leaves, pl. 9. f. 5. (*a. a.*)

Berry (bacca) a pulpy seed-veſsel without valves; in which the seeds are naked, as in the *Gooseberry* or *Elderberry.* Pl. 5. f. 19.

Bicapsularis, having 2 Capsules.

Bicornes, 2-horned.

Biennial (biennis) plants or roots; are those which continue alive two years.

Bifarius, pointing from opposite sides.

Bifidus, cleft, or cloven into two.

Biflorus, 2-flowered.

Bigeminum, twin-fork.

Bijugum, in 2 pairs.

Bilabiata, 2-lipped, (bloſsom.)

Bilobum, 2-lobed, (leaf.)

Biloculare, 2-celled, (seed-veſsel.)

Binatus, in pairs.

Bipartitum, deeply divided into 2 parts.

Bipinnatum, doubly winged, (leaf.)

Bird-footed (pedatus) bearing some resemblance to the feet of land-fowl; as the leaves of the *Paſsion Flower,* or the seed-veſsel of the *Bird's-foot Trefoil.* Pl. 7. f. 49.

Biternatus, doubly three-fold.

Bitten (præmorsus) not tapering to a point, or ending in any even regular form, but appearing as if bitten off; as in the root of *Devil's-bit;* and the petals of *Common Mallows,* and *Marshmallows.* Pl. 7. f. 18.

Bill (rostrum) a long awl-shaped substance attached to a seed, resembling the bill of a Woodcock; as in *Shepherd's Needle;* or *Crane's-bill.* Pl. 5. f. 15. (*a.*)

Bivalve, 2-valved (seed-veſsel.)

Bladders (vesiculæ) a kind of Air-bags found on some species of *Fucus*.

Bladder-shaped (inflatus) inflated or distended like a blown bladder; as is the Cup of the *Bladder Campion*, and the bloſsom of the *Figwort*.

Blistered (bullatus) when the surface of a leaf rises high above the veins, so as to appear like blisters.

Blossom (corolla) one of the parts of a flower. It may consist of one or more *Petals*; and is formed by an expansion of the inner bark of the plant. Pl. 4. It is sometimes difficult to say, whether we should call this protecting cover to the Stamens and Pistils, a bloſsom or a cup. In most instances the former is coloured, and the latter green; but that is not always the case, for there are green bloſsoms and coloured cups; but Linnæus remarks, that the bloſsom has its Petals, or its Segments placed alternately with the Stamens, whilst the leaves or segments of the cup stand opposite to them. If this rule be adopted, the bloſsom or Corolla of the Tulip, and several other bulbous rooted plants, must be considered as a Cup.

Blunt (obtusus) opposed to *acute*, as the leaves of the *Spiked Speedwell*; the cup of the *Convolvulus*; and the capsule of the *Yellow Rattle*. See the leaf, pl. 7. f. 39.

Boat-shaped (navicularis) like a little keel-bottomed boat; as are the valves of the seed-veſsels of the *Woad* and the *Mithridate*. Pl. 5. f. 13. and the keel or lower petal of many of the butterfly-shaped bloſsoms.

Border (lamina) the upper spreading part of a bloſsom of one Petal; as in the *Primrose* and *Auricula*. It is sometimes used to signify the thin membranaceous part of a seed, or seed-veſsel. Pl. 4. f. 1. (*b. b.*)

Bordered (marginatus) having a border.

Bowed (arcuatus) bent like a bow.

——— inwards (incurvatus.)

Brachiatus, see croſs-pairs.

Brachium, an arm; see measure.

Bractea, floral-leaf.

Branched (ramosus) having lateral divisions.

Bristles (setæ) strong, stiff, cylindrical hairs.

Bristle-shaped (setaceus) slender, and nearly cylindrical, of the size of a bristle, as the straw of the *least Bullrush*: the leaves and stipulæ of the *Asparagus*.

Broad-topped-spike, see Corymbus.

Bud (gemma) a protuberance upon the stem or branches, generally scaly, and gummy or resinous. It contains the rudiments of the leaves, or flowers, or both, which are to be expanded the following year.

Bulb (bulbus) may be considered as a *Bud* placed upon the root. It contains the rudiments or embryo, of a future plant. Bulbs sometimes are found upon the stem, as in some species of *Garlic*.

A Bulbous Root (bulbosus) is either
Solid, as in the *Tulip*. Pl. 11. f. 3.
Scaly, as in the *Lily*. Pl. 11. f. 4. or
Coated, as in the *Onion*. Pl. 11. f. 2.
Jointed, as in the *Adoxa* and *Lathræa*.

Bulging (gibbus) swollen out, not regularly, but on some one or more sides, as the under part of the bloſsom of the *Foxglove*, the bloſsom of the *Honeysuckle*, the Calyx of the *Turnep*, *Cabbage*, and *Wallflower*. Pl. 4. f. 12. (*b*.)

Bullatum, blistered (leaf.)

Bunch (racemus) a fruit-stalk furnished with short lateral branches. The *Grape*, the *Currant*, and the *Barberry* are instances. Pl. 6. f. 8.

Bundle (fasciculus) when several flowers stand on their respective fruit-stalks, which grow nearly from the same point, and rise to the same height; as in the *Sweet William*.

Bundled (fasciculatus) Leaves, when they arise nearly from the same point, and are crowded together; as in the *Larch*. Pl. 9. f. 3. (*f*.)

——— Roots; a sort of tuberous roots in which the knobs are connected without the intervention of threads, as in the *Pæony*.

Butterfly-shaped (papilionaceus) from an imaginary resemblance that some bloſsoms bear to that insect. The *Pea* and the *Broom* furnish examples. See the introduction to the Claſs Diadelphia; and also pl. 4. f. 13. 14. 15. 16. 17.

Caducus, shedding.

Cæspitosus, matted together.

Calcaratus, having a spur.

Caliculus, seed-coat cover.

Calyculatus, double Calyx.

Calyptra, veil.

Calyx, or Empalement, is a continuation of the outer bark of a plant, constituting a part of the flower. It is either
——— a Cup, (perianthium) as in the *Primose*; pl. 3. f. 10.
——— an Involucrum (involucrum) as in *Carrot*; pl. 6. f. 9. (c. c.)
——— a Catkin (amentum) as in *Hasel*; pl. 6. f. 12.
——— a Veil (calyptra) as in several *Moſses*; pl. 1. f. D. (*a*.)
——— a Husk (gluma); as in *Oats*; pl. 2. f. 21. (*a. a.*) f. 1. (*a. a.*)
——— a Sheath (spatha) as in *Narciſsus*; pl. 3. f. 9. (*a. a.*) or
——— a Curtain (volva) as in several *Funguſses*. Pl. 1. f. H. (c.) See those terms.

Campanulatus, bell-shaped.

Canaliculatum, channelled (leaf.)

Cancellatus, latticed.

Capillaris, hair-like.

Capitatus, growing in heads.

Capitulum, knob, or little head (of flowers.)

Capreolus, see Cirrus and Tendril.

Capsule (capsula) a dry hollow seed-veſsel, which opens naturally in some determinate manner; as at the side by a small hole in *Orchis* and *Campanula;* horizontally in *Pimpernel;* longways in *Convolvulus;* at the bottom in *Arrowgrass;* or at the top, as in most plants. See pl. 5. f. 6. 9. 14.

Carina, keel.

Carinatus, boat-shaped, or keeled.

Carnosum, fleshy (leaf.)

Cartilagineum, gristly (leaf.)

Catkin (amentum) is a composition of flowers and chaff, on a long, slender, thread-shaped receptacle, the figure of the whole resembling a cat's tail. The *Willow*, the *Hasel*, and the *Reedmace*, are instances. Pl. 6. f. 12.

Cauda, tail.

Caudex, stem, or trunk; particularly applied to a tree.

Caulescens, having a stem.

Caulinus, belonging to the stem.

Caulis, stem; a term of more general signification than either a scapus or stipes; which see.

Cavis, hollow.

Cell (loculamentum) having cells (locularis) a vacuity in the capsule for lodging the seed. Capsules have either one cell, as in *Primrose;* two as in *Thornapple;* three as in *Lily;* four as in *Spindletree;* five as in *Rue;* six as in *Asarabacca*, &c. Pl. 3. f. 4. When a capsule has several cells, with a single seed in each, it is sometimes called *Cocca;* thus a 2-celled and a 2-seeded Capsule is called Capsula dicocca; but its application seems limited to Capsules which have external protuberances corresponding with the internal cells, and these protuberances being so strongly marked, as to give the appearance of so many Capsules united together, rather than one single Capsule. —It also signifies the cavity in the Anthers which contains the Pollen.

Central (flores flosculosi) **Florets**; those which occupy the middle part of a compound flower; as the yellow ones in the middle of a common *Daisy;* pl. 4. f. 24. (*b.*) and it likewise is used to signify the florets in the middle part of an Umbel.

———— **Leaf-Stalk** is fixed not to the base, but to the middle part of a leaf, as in the garden *Nasturtium*, and *Marsh Pennywort*. Pl. 9. f. 4. (*a.*)

Cernuus, bent, (fruit-stalk.)

Chaff (palea) a thin membranaceous substance growing upon a common receptacle, to separate the florets from each other, as in *Teasel*; *Scabious*; *Willow*; *Burdock*.

Chaffy (acerosus) **Leaves**; these are hard, dry, strap-shaped, permanent, surrounded at the base by a kind of membranaceous chaff-like substance. The leaves of the *Fir*, the *Yew*, the *Pine*, and the *Cedar* are so called. Pl. 9. f. 3. (*e*.)

—— **Receptacle**, **Flower**, or **Husk** (paleaceus) set with a substance like chaff.

Channeled (canaliculatus) **Leaves**, **Leaf-stalk**, or **Fruit-stalk**; having a deep furrow or channel extending from the base to the end.

Chive, see Stamen.

Cicatrisatus, scarred.

Ciliatus, fringed.

Cingens, binding round.

Circular (circularis) round and flat; nearly in the form of a circle, as are the leaves of the *Alder*, or the petals of the *Strawberry* and *Hawthorn*. Pl. 7. f. 2.

Circumcissa, cut round.

Circumference, (circulus) the part of a circle most distant from the centre. Thus in a shilling or half crown, the inscription is round the circumference. It is used in botany to expreſs the florets that are furthest from the centre of a compound flower; as the white ones which surround the yellow ones in the *Common Daisie*, or the florets in the outer part of an Umbel. Pl. 4. f. 24. (*a. a. a. a.*)

Cirrosum (fol.) terminating in a tendril.

Cirrus, tendril.

Clammy (viscosus) adhesive like bird-lime; as are the leaves of the *Alder*; or the stalks of *Fraxinella*; and *Gum Cistus*.

Clasper, see tendril.

Class (claſsis) see the introduction.

Clausus, closed.

Clavatus, club-shaped.

Clavicula, the same as Cirrus.

Claw (unguis) bloſsoms that are composed of several petals, have frequently those petals so formed as to admit of two distinct names; the claw and the limb. The claw is the lower part, or that next to the base; thus if you take a *Pink*, a *Campion*, or a *Wallflower*, and draw out one of the petals, the lower and the slender part by which it was connected, and which was included within the cup, is the part which is called the *Claw*. Pl. 4. f. 11. (*a. a.*)

Cleft, see cloven.

Climbing (scandens) a term applied to plants which take the advantage of some adjoining body to support and raise themselves; as the *Ivy*.

Cloathing (pubes) every species of hairiness on the surface of plants. See Cotton; Hair; Wool; Bristles. In a more extended sense, it also includes viscid matter, glands, &c.

Close (conglomeratus) when a branching fruit-stalk bears its flowers closely compacted together, but without regularity.

Cloven (fiſsus) divided half way down, as are the summits of *Ground Ivy*, and *Jacob's Ladder*; the petals of *Campion*; and the leaves of *Wormwood*.

——— Anthers; see pl. 1. f. 3. (*a. a. a.*)

Club-shaped (clavatus) thinner at the base and thicker upwards, as is the long receptacle of the *Cuckowpint*, and the fruit-stalk of the *African Marigold*.

Cluster (thyrsus) a collection of flowers somewhat in an egg-shaped form, as those of the *Lilac* and *Butterbur*.

Coadunatus, joined together at the base.

Coarctatus, compact.

Coated (tunicatus) root; composed of layers one over another, as in the onion.

Cobwebbed (arachnoideus) covered with a substance resembling a Cobweb.

Coccum, see Cell.

Coccus, a name given to a Capsule when 2 or more are joined together. If 2, dicoccus; if 3, tri-coccus, &c. *Mercurialis* (*Dog's Mercury*) is an example of the dicoccus Capsule.

Cochleatum (pod) convoluted like a snail-shell.

Coloratus, coloured.

Coloured (coloratus) when a leaf or cup is any other colour than green; as the floral-leaves of *Golden Saxifrage*.

Column (columnella) the upright little pillar in the center of some Capsules to which the seeds are fixed.

Columnar (teres) differs from cylindrical by tapering upwards, like the shaft of a column; and is thus applicable to stems, some leaves, &c.

Columnella, column.

Coma, comb.

Comb (coma) a collection of floral-leaves, terminating the flowering stem, as in *Sage* and *Crown Imperial*; it is remarkable also in the *Pine Apple*.

Comb-like (pectinatum) a sort of winged leaf, the leafits of which are like the teeth of a comb.

Common Calyx (calix communis) including several flowers; see the introduction to the claſs Syngenesia. We have a well known instance in the *Dandelion* and in all the *Thistles*.—Pl. 4. f. 29.

——— Receptacle (receptaculum commune) a seat for several flowers or florets included within one common

Calyx; as is the case with most of the plants in the claſs Syngenesia. The *Dandelion* is an example. Pl. 4. f. 23. (*a*.)

Common Fruitstalk, bearing several flowers.

Communis (common.)

Compactus, firm.

Compact (coarctatus) growing close, and as it were preſsed together.

Completus, complete flowers, such as have both a cup and a bloſsom.

Complicatus, doubled together.

Compositi (compound.)

Compound Flowers; (compositi flores) consist of many florets or little flowers, upon one receptacle or seat, and included within one common Calyx; as most of those in the claſs Syngenesia; a *Thistle* is a familiar example. Pl. 4. f. 19. 24. 25. Sometimes, but with leſs propriety, the flowers which grow in Umbels are called compound, as those in the second order of the claſs Pentandria; of which the *Carrot* is a well-known instance.

Compound Umbel (umbella composita) when each umbel is subdivided into other little umbels or umbellules. Pl. 6. f. 9.

——— **Bunch**, composed of several leſser bunches.

——— **Spike**, composed of several little spikes or spikets.

——— **Corymbus**, composed of several small corymbs.

——— **Leaf**, when each leaf-stalk supports more than one leaf; or when one leaf is inserted into another, as in *Wood Horsetail*. Pl. 7. f. 47. 49. Pl. 8. f. 52. 53. 54. 55. 56. Pl. 9. f. 3. (*a*.) See also *doubly compound; triply compound*.

——— **Berry**, when one large berry is composed of several small ones; as, for instance, the *Raspberry*.

Compressed (compreſsus) a term applied to a cylindrical substance more or leſs flatted. Thus suppose a straw to be the cylindrical substance; if this be preſsed between the thumb and finger so as to flatten it, we should then say it was compreſsed. The cup of the *Gilliflower* or the *Wallflower* is compreſsed, and so is the bloſsom of the *Rattle*, and the pod of the *Ladysmock*.

——— **Leaf**, one that is thicker than it is broad.

Concave (concavus) hollowed out like a bowl; as are the petals of the *Cherry* or the *Hawthorn*; the leaves of *Broad-leaved Plantain*: or hollowed in a more general sense, as the valves of the graſses.

Conceptaculum, see Air-bag.

Conduplicatus, folded or doubled together.

Cone (strobilus) a species of seed-veſsel formed by a Catkin with hardened scales; containing a seed within the base of each scale; exemplified in the *Pine* and *Fir*. Pl. 5. f. 18.

Coneshaped (cucullatus) leaf, a term applied to leaves which are rolled up, as the grocers roll paper to put sugar or spices in, like a hollow cone.

Confertus, crowded.

Confluent (confluentia folia) running one into another at the base.

Congestus, heaped together.

Conglomeratus, congregated.

Congregated (glomeratus) when several little spikes or panicles are crowded together somewhat in a globular form.—Examples are not uncommon among the Graſses; *Rough Cocksfoot* is one.

Conical (conicus) the shape of the *Alpine Strawberry;* nearly resembling the form of a sugar loaf.

Conjugatum, a winged leaf with only 1 pair of leafits.

Connatum, united at the base.

Connected, (adnatus) *Leaves* or *Stipulæ*, such as have their upper surface at the base growing to the stem or branch.

Connivens, converging or approaching; closing.

Contiguous (adpreſsus) when a leaf, branch, or seed-veſsel rises up so perpendicularly as to stand almost parallel and close to the stem, as if preſsed to it. The pods of the *Common Mustard* furnish an example; and the leaves of the *Creſs Mithridate*. Pl. 9. f. 6.

Contrarium, see Transversum.

Converging (connivens) approaching each other at the top.

——————— **Leaves**, bent inwards towards the stem. Pl. 9. f. 5. (*a. a.*)

——————— **Petals**, leaning towards the center of the flower, as in the *Pæony* and *Globe-flower*.

——————— **Filaments**, as in *Borage*.

——————— **Anthers**, leaning towards each other, as in *Gill*, and *White Archangel* or *Deadnettle*.

Convex (convexus) opposed to concave. Rising like the surface of a globe. The receptacle of the garden *Tansey* is convex.

Convolutus, rolled or twisted spirally.

Corculum, corcle, or heart of a seed.

Cordatum, heart-shaped.

Coriaceus, leather-like.

Cornutus, horn-shaped.

Corolla, bloſsom.

Corona, crown; see crowned.

Cortex, bark.

Corymbus, differs from a spike in having the flowers of which it is composed not sitting, but standing each on its proper fruitstalk, each of which again springs out of one common fruitstalk. They are unequal in length, the lowermost being the longest, the others gradually shorter as they ascend, so that the whole collection of flowers forms nearly a flat and broad surface at the top. See Pl. 6. f. 7; or look at a *Pear Tree* when in flower.

Costatum, ribbed (leaf.)

Cotton (tomentum) **Cottony** (tomentosus) or downy; covered with a whitish cotton-like substance, as the leaves of the *Great Mullein* and of the *Marsh-mallow*.

Cotyledones, seed-lobes.

Creeping (repens) **Stem**; creeping along the ground, and sending forth little roots; the *Violet* and *Ivy* are instances. Pl. 10. f. 8.

———— **Root**, as in the *Spearmint*. Pl. 10. f. 7.

Crenatus, scolloped.

Crescent-shaped (lunularis) (lunatus) shaped like a new moon; as are the Anthers of the *Strawberry*.

———— **Leaf**. Pl. 7. f. 11.

Crested (cristatus) flowers, furnished with a tuft or crest, as is the common *Milkwort*.

Cristatus, crested.

Crookedly bent back (retrorsum-sinuatum.) See Pl. 7. f. 27.

Cross-pairs (decussatus) when leaves grow in pairs, and each pair points in a different direction to the pair next above or below it. Thus, if one pair point East and West, the pair next below it point North and South; the third pair croſses the second, the fourth the third, and so on. Pl. 9. f. 1.—**Bracchiatus** seems to apply to *branches* growing in the same manner.

Cross-shaped (cruciatus) (cruciformis) **Flowers**; are those which have four petals disposed in the form of a croſs. The *Gilliflower*, *Candytuft*, and *Cabbage*, are familiar instances. Pl. 4. f. 11. f. 12.

Crowned (coronatus) **Seed**; is a seed to which the **Calyx** adheres, as in *Teasel;* or it is a seed furnished with down, as in *Dandelion*. Pl. 4. f. 22. f. 27.

———— **Berry**, is a berry with the Calyx adhering; as in the *Honeysuckle.*

Cruciatus, croſs-shaped.

Cruciformis, see croſs-shaped.

Cryptogamia, see the introduction to the Claſs so called.

Cucullatus, cone-shaped.

Cubit, about half a yard; see measure.

Culmus, straw.

Cuneiformis, wedge-shaped.

Cup (perianthium) a species of Calyx contiguous to the other parts of the flower. It either includes one flower, as in the *Convolvulus* and *Gillyflower;* or several florets, as in the *Sunflower* and *Daisie*. Pl. 3. f. 1. f. 10. f. 5. (*a*) Pl. 4. f. 7, (*c*.) f. 12. (*b*.) f. 13. 14. 18. (*a. a. a.*)

Cup, Double (calyculatus) when one Cup has another surrounding its base.

Curled (crispus) Leaves; as in *Endive* and *Curled Mint.* Pl. 8. f. 67.

Curtain (volva) the Calyx of Agarics and Boleti. It is sometimes fibrous, but generally like thin white leather. It surrounds the Stem, and is attached to the Pileus. When torn by the growth of the former and the expansion of the latter, the part surrounding the Stem often remains, and in that state it is called the Ring. See Pl. 1. f. H. (*a.*)

Cuspidatus, prickly-pointed.

Cut-round (circumsciſsus) when a seed-veſsel does not open longways, in the usual manner, but in a circle surrounding it, like a snuff-box or an ivory egg; as in *Pimpernel.* Pl. 5. f. 9.

Cyathiformis, glaſs-shaped.

Cylindrical or round, (teres) like a walking stick; the form of the Trunk of a tree.

——— of a Straw; *Bullrush.*

——— of a Stalk; *Great Plantain.*

——— of a Stem; *Asparagus.*

——— of a Leaf; *Wild Garlick; Onion.* Pl. 8. f. 68.

——— of a Cup; *Pink.*

——— Catkin; *Reedmace; Hazle.*

Cyma, tuft.

Dagger-pointed (mucronatus) not gradually tapering to a point, but ending suddenly in a sharp-pointed substance, like the blade of a dagger from its handle; as in the Calyx of *Phleum.*

Debilis, feeble.

Decagynia, 10 Pistils.

Decandria, 10 Stamens; see the introduction to the Claſs so called.

Decaphyllus, 10 leaved; (cup.)

Decemfidus, with 10 clefts, (cup.)

Decemloculare, 10 celled, (Capsule.)

Deciduous (deciduus) Leaves; those which fall off at the approach of winter.

——— Calyx or Cup; falling off before the bloſom; as does that of the *Thorn-apple,* the *Cabbage,* the *Ladysmock,* and the *Poppy.*

——— Seed-veſsel; falling off before it opens, as in the *Sea Rocket* and *Woad.*

Declining (declinatus) bent like a bow, with the arch downwards; as the seed-veſsel of the *Water Creſset;* the filaments of the *Bugloſs.* See the lower Stamens in pl. 1. f. 11. f. 12.

Decompositus, doubly compound,

Decumbens, lying down.

Decurrent (decurrens) leaf; when there is no leaf-stalk, but the base of the leaf runs down the stem. The *White Mullein* and *Musk Thistle* are examples. Pl. 9. f. 4. (*e.*)

Decursivum (leaf) when the leafits of a winged leaf are decurrent upon the leaf-stalk.

Decussatus, croſs pairs.

Deflexus, bending outwards in a small degree.

Defloratus, spoken of Anthers which have shed their Pollen.

Dehiscens, opening or standing open.

Deltoideus, triangular spear-shaped, or trowel-shaped.

Demersus, see submersus.

Dendroides, shrub-like.

Dentato-serratus, tooth-serrated.

Dentato-sinuatus, toothed and indented.

Dentatus, toothed.

Dented (retusus) a blunt leaf, &c. with a dent or blunt notch at the end; as in the *Broad-leaved Sea Heath.*

Denticulatus, set with little teeth.

Dependens, hanging down.

Depressus, depreſsed.

Depressed (depreſsus) when the surface of a leaf, &c. is in a small degree concave—preſsed down—flatted.

Diadelphia, see the introduction to the claſs so named.

Diamond-shaped (rhombeus) applied to leaves which resemble the figure of a diamond as painted on cards.

Diandria (2 stamens) the name of the second claſs.

Dichotomus, forked.

Dicoccus, 2 capsules united, each with 1 cell.

Didyma, double.

Didynamia, see the introduction to the claſs so named.

Difformis, irregular in shape; of different shapes.

Diffusus, spreading.

Digitatus, finger-like.

Digynia (2 Pistils) the name of several of the Linnæan Orders.

Dimidiatus, half round, extending half way round.

Dimpled (umbilicatus) having a little hollow dot; as in the fruit of the *Barberry.*

Dioecia, signifies that the flowers bearing Stamens, and those bearing Pistils, grow on different plants. Thus in the *Yew Tree*, if you find it in flower, and one of the flowers is furnished with Stamens, all the flowers upon that particular tree have *only* Stamens and no Pistils; but if you find a flower with a Pistil and no Stamens, then all the flowers upon that tree will be found equally destitute of Stamens.—Pl. 1. f. 22.

Di-petala, 2 petaled.

Diphyllus, 2 leaved.

Discus, disk.

Disk, of a leaf, signifies its surface, either upper or under.

Disk, compound or incorporated flower, signifies the central part only. Thus in a *Daisy*, the minute yellow florets form the Disk, and the larger white strap-shaped florets the Rays.

Dispermus, 2 seeded.

Dissectum, see laciniatum.

Dissepimentum, partition.

Dissiliens, bursting suddenly asunder.

Distant (distans) far asunder; as the Stamens of the *Mint*; or the whirls of the flowers in the *Corn Mint*.

Distented (ventricosus) or bellying, as the cup of the *Rose*, or the under part of the bloſsom of the *Foxglove*. Pl. 4. f. 4.

Distichus, 2 rowed.

Distinct, unconnected, separate from each other.

Divaricatus, straddling.

Diverging (divergens) spreading wide from the stem almost horizontally. This term is opposed to *compact*.

Divisions. See the next article.

Divided (partitus) applied to a leaf, a cup, or a petal; it signifies that it is parted more than half way down; as the petals of *Chickweed*; the cup of *Comfrey*, or *Borage*. Pl. 7. f. 28.

Dodecandria (12 stamens) the title of a claſs, which see.

Dodrans, a palm; about a quarter of a yard; see measure.

Dolabriforme (leaf) hatchet-shaped.

Dorsalis, fixed to the back.

Dotted (punctatus) marked with little hollow dots; as are the leaves of the *Sea Chamomile*; and the receptacle of some of the compound flowers. Pl. 4. f. 23.

Doubled *together* (conduplicatus) as are the leaves of the *Black Cherry* before they unfold.

Double (didymus) applied to the anthers of several flowers, when upon one filament there are two anthers united, like a double nut; as in the *Ranunculus*, *Anemone*, *Celandine*, *Plumb*, *Cherry*. Pl. 3. f. 6. (*h.*)

——— Calyx (duplex or calyculatus) when the calyx of a flower hath another outer calyx surrounding it, as in the *Marshmallow*, and *Hollyhock*.

——— Germen, when two Germens are united together, as in *Goose-graſs* or *Cleavers*.

Doubly-compound (decompositus) Leaves, having the primary leaf-stalk divided, so that each division forms a compound leaf. They are of three different kinds.

1. Twinfork (bigeminus) when a forked leaf-stalk bears several leafits at the end of each division or fork. Pl. 10. f. 4.

2. Doubly-threefold (bi-ternatus) when a leaf-stalk with three divisions bears three leafits upon the end of each division. Pl. 8. f. 57.

3. **Doubly-winged** (duplicato-pinnatum) (bi-pinnatum) when a leaf-stalk has lateral ribs, and each of these ribs forms a winged leaf; example *Tansey*, *Yarrow*, Pl. 8. f. 56. For leaves *more than doubly compound*, see Triply Compound.

Down (pappus) the fine hair or feather-like substance crowning the seeds of some plants, and enabling the wind to scatter them abroad. In *Sow-thistle* it consists of simple or undivided hairs, but in the *Goatsbeard* it is branched, and then is called *feathered* down. Pl. 4. f. 22. (*l.*) Pl. 6. f. 2. (*a. b.*)

Downy (leaf) see Cottony.

Drooping (nutans) for such is the most exact meaning of the term when applied to a Panicle, as it frequently is when speaking of the Graſses, whose spikets often hang down in a beautiful pensile form.

Drupa, a pulpy seed-veſsel without valves, consisting of a hard nut or stone, encompaſsed by a pulpy substance; exemplified in the *Plumb*, the *Cherry*, and the *Peach*. Pl. 5. f. 21.

Duplicatus, doubled.

Duplicato-crenatum, doubly scolloped.

———— **Pinnatum**, doubly winged.

———— **Serratum**, doubly serrated.

———— **Ternatum**, doubly three-fold.

Dust, see Pollen.

Dusted (pulveratus) some plants appear as if covered with a kind of dust or powder; e. g. the *English Mercury*, and the leaves of the *Auricula*.

Ear-shaped (auriculatus) somewhat resembling a human ear. It is also used to expreſs a little appendage at the base of a leaf or leafit.

Ebracteatus, without any floral leaf.

Ecalcarata, without a spur or horn.

Echinatus, set with prickles.

Egg-shaped (ovatus) signifies a shape resembling the solid substance of an egg, as the seed-bud of *Jacob's Ladder*, and the seeds of *Fennel*; or it implies only the form of an egg, if divided longways, as in the leaves of the *Beech-tree* or *Peppermint*. Pl. 7. f. 3.

Egg-spear-shaped (ovato-lanceolatum.) See spear-egg-shaped.

Ellipticum, see oval.

Emarginatum, notched at the end.

Embracing (amplexicaulis) the Stem; when the base of a leaf nearly surrounds the stem, as in *Solomon's Seal*, *Poppy*, and *Borrage*. Pl. 9. f. 4. (*f.*)

Empalement, see Calyx.

Enervium, nerveleſs.

Enneagynia, 9 Pistils.

Enneandria, 9 Stamens.

Enodis, jointleſs, or without joints.

Ensiforme (leaf) sword-shaped.

Entire, (integer) **Leaf**, or **Petal**; this term is opposed to cloven, gashed, indented, &c. but it does not signify that it is not serrated or scollopped. When a leaf is said to be very entire (integerrimus) we understand that it is not even scollopped or serrated. The leaves of a Nettle are *entire*, but those of a Lilac are *very entire*. Pl. 7. fig. 31. 35. entire leaves, f. 39. 40. very entire leaves.

Equal (æqualis) sometimes signifies regular; all alike; as the bloſsoms of *Angelica.* The florets forming the compound flowers of the first Order of the Claſs Syngenesia are said to be equal: that is, they are all alike in being equally furnished both with Stamens and Pistils.

Equitans, folded one upon another; laminated.

Erectus, upright.

Erosum, gnawed.

Essential Character (character eſsentialis) is a single circumstance serving to distinguish a genus from every other genus. Thus the *Crowfoot* (Ranunculus) is distinguished from other genera by the Nectary at the base of each petal; and the *Colewort* is known from all the other genera in the same natural order, by the four longer threads being forked at the top.

Even (lævis) **Surface**, level, regular; in opposition to scored, furrowed, or other inequalities, occasioned by deficiency of substance, or by the presence of hairs, &c.

Exaratus, see furrowed.

Excrescence (apophysis) a substance growing from the seat of the flower in some of the Moſses.

Expanding (patens) standing in a direction between upright and horizontal; as the petals of the *Strawberry*, the branches of most plants, and the leaves of the *Brooklime Speedwell.* Pl. 9. f. 5. (*c. c.*)

Exsertus, protruding; opposed to inclosed.

Extipulatus, without Stipulæ.

Extrafoliaceus, underneath the leaves.

Eye (hilum) the external scar upon a seed by which it was fixed to the seed-veſsel; it is very remarkable in a *Bean.* Pl. 6. f. 3. (e.)

Farctus, filled full.

Farina, see Pollen.

Fasicularis, }
Fasciculatus, } bundled.

Fasiculus, a bundle.

Fastigiatus, flat topped.

Fathom (orgya) see measure.

Faux, mouth.

Favosum, honey-combed.

Feathered, (plumosus) the down of seeds, sometimes consists of fine simple or undivided hairs, in others it sends out lateral hairs, and then it is said to be feathered. Pl. 4. f. 22. (*l.*) Pl. 6. f. 2. (*b.*)

Feeble (debilis) not strong enough to stand upright.

Female Flowers, or **Florets**; such as contain one or more Pistils, but no Stamens.

Femineus, see Female.

Fence, see Involucrum, and Involucellum.

Ferns, see Filices.

Fertile Flowers (fertiles vel feminei flores) those that produce seed capable of vegetation; as is very generally the case in flowers which have both Stamens and Pistils. Flowers that have only Stamens never can produce seeds; and flowers that have only Pistils *must* be barren, if they are so situated as to be out of reach of the Pollen, from the Anthers of the stameniferous flowers: in some instances they will indeed produce seeds to all appearance perfect, but these seeds will never vegetate.

Fibres (nervi) woody strings or nerves, running undivided from the base to the extremity of a leaf; as in the broad and narrow-leaved *Plantain.* Pl. 7. f. 46. These kind of fibres, whether branched or not, have been indifferently called nerves, and veins, but without much proof that they are destined to the office of either. Perhaps they ought only to be considered as ribs, formed to strengthen the leaf.

Fibrous (fibrosus) **Roots**; composed of small threads or fibres. Pl. 10. f. 7.

Fiddle-shaped (panduriformis) oblong, but narrowed in the middle and broader below, as is the leaf of one species of *Dock*, supposed to resemble a violin, therefore called a *Fiddle Dock.*

Filament, or thread (filamentum) the thread-shaped part of a Stamen supporting the Anther. See Stamen; see also Pl. 3. f. 3. (*h.*) f. 6. (*g.*) and Pl. 1. f. 19. (*a. a.*)

Filices, Ferns, the name of the natural aſsemblage of plants constituting the first Order of the Claſs Cryptogamia.

Filiformis, thread-shaped.

Fimbriatus, see fringed.

Fissum, cloven.

Fistulosus, hollow.

Five-cornered (quinquangulare) leaf. See pl. 7. fig. 20.

Flaccidus, limber, feeble; see debilis.

Flagellum, a Runner.

Flatted, see compreſsed.

Finger-like (digitatus) a species of compound **Leaves**, resembling the expanded fingers of a man's hand; so that two or more leaves are joined to the end of an undivided leaf-stalk, e. g. those of the *Wild Black Hellebore*, *Lupine*, and *Horse Chesnut*. Pl. 7. f. 48.

Finger-like, they may be in pairs (binatus) with two terminating leafits. Pl. 7. f. 50.

———————— in threes (ternatus) with three terminating leafits. Pl. 7. f. 51.

———————— in fives (quinatus) with five terminating leafits.

Firm (compactus) applied to the texture of a leaf.

Flat-topped (fastigiatus) rising to the same height, so as to form a flat, or nearly flat surface at the top.

Fleshy Seed-vessel, see Pomum.

——— Leaf, or Root (carnosum) as the leaves of *Sedum Dasyphyllum*.

——— more solid than pulpy; as the fruit of the *Apple;* the root of the *Turnip;* and the leaf of the *Round-leaved Stonecrop*.

Flexible (flexilis) readily bending without breaking.

Flexuosus, zig-zag; without angles; gently winding.

Floating (natans) applied to aquatic plants, whose leaves or flowers float upon the surface of the water: e. g. *Water-lily*.

Floral-leaves (bracteæ) differ in shape or colour from the other leaves of the plant; they are generally placed on the fruit-stalk, and often so near the flower as in some instances to be easily mistaken for the Calyx; but the Calyx dries or withers when the fruit is ripe, whereas the floral leaves endure as long as the other leaves of the plant. Examples of floral leaves may be seen in the *Pansie*, the *Limetree*, the *Hellebore*, the *Passion-flower*, the *Sage*, the *Wild Marjoram;* and many others. Pl. 9. f. 8. (*a*, *a*.)

——— (florale fol.) means also, sometimes the leaves more immediately approaching the flower, though not properly floral-leaves.

Floret (flosculus) a little flower, one of the small flowers composing a compound or incorporated flower. See the introduction to the Claſs Syngenesia. They are Tubular; that is, formed of a tube cloven into five parts at the border, as in the *Tansie;* or Narrow, when the bloſsom is long and strap-shaped, as in *Dandelion*. In the *Daisie* and *Sunflower*, the florets in the centre are Tubular, and those in the circumference Narrow, or Radiate. Pl. 4. f. 21. f. 24. f. 26. In the second Order of the Claſs Pentandria, which contains the Umbelliferous plants, the florets composing the Umbels are each formed of five Petals. When the petals are all of the same size and shape, the florets are said to be equal;

as in *Angelica* and *Cellery;* but when the outer petals are larger than the others, the florets are said to be RADIATE; as in *Shepherd's Needle* and *Carrot.*

FLOS, flower.

FLOSCULUS, florets.

FLOSCULOSUS, a tubular floret.

FLOWER (flos) a temporary part of a plant appropriated to the production of seeds: it is composed of seven parts; the CALYX; the BLOSSOM; the STAMENS; the PISTILS; the SEED-VESSEL; the SEEDS; and the RECEPTACLE. To these perhaps we may add an eighth, *viz.* the NECTARY. It is not neceſsary that all these parts should be present to constitute a flower. INCOMPLETE flowers are deficient in one or more of the parts. The *Hyacinth* and *Tulip* have no Calyx. The *Misletoe, Gale, Hop, Yew, Dog's Mercury, Nettle;* and the flowers of the plants bearing Catkins, have no bloſsoms. The *Ground Ivy*, the *White* and *Red Deadnettle*, and all the plants in the first Order of the Claſs Didynamia, have no seed-veſsels.

FOLIACEUS, leafy.

FOLIOLUM, leafit.

FOLIUM, leaf.

FOLLICULUS, air-bag.

FOOT (pes) see measure.

FORKED (furcatus) (dichotomus) dividing and often subdividing into forks, as the branches of most of the *Spurges;* the fruit-stalks of the *Common Calamint*, and the *Pink;* the *Style* of the *Currant.* Pl. 10. f. 4.

FORNICATUS, vaulted. It also signifies closed, when applied to the bloſsom of the rough-leaved plants in Pentandria Monogynia, meaning that the top of the tube is shut, or closed.

FOUR-CORNERED (tetragonus) as the stem of the *Deadnettle.*

FRINGED (ciliatus) as the bloſsom of the *Buckbean*, and the *Garden Nasturtium;* or the leaves of the *Croſs-leaved Heath.* Pl. 7. f. 43. The term *fimbriatus* has also been used to expreſs the fringe of a bloſsom, but it seems an uſeleſs distinction.

FRONS, frond, a term designed to signify that the stem, root, and leaf, are all in one, as in the Ferns, the Fuci, &c. but there is no great use in such a term, neither does it strictly apply in all cases, according to its original intention.

FRUCTUS, fruit.

FRUTEX, a shrub.

FRUIT (fructus) a part of a flower consisting of the SEED-VESSEL, the SEED, and the RECEPTACLE.

FRUIT-STALK (pedunculus) a part of a stem or branch, bearing flowers but not leaves. Pl. 9. f. 5. (*m.*) f. 8. (*c.*) pl. 6. f. 7. (*a. a. a. a. a. a.*)

Fruticosus, shrub-like.

Fulcra, props.

Fuliginosus, sooty.

Fungi, the last Order of the Claſs Cryptogamia.

Funnel-shaped (infundibuliformis) applies to a bloſsom of one petal; the lower part of which is tubular, the upper part conical, as in *Hound's Tongue*, *Bugloſs*, *Cowslips*, Pl. 4. f. 7.

———— Cup; as in *Thrift*.

Furca, fork.

Furcatus, forked.

Furrowed (sulcatus) marked with deep lines running lengthways.

Fusiformis, spindle-shaped.

Galea, helmet.

Gaping (ringens) (personatus) Blossoms; so called from the resemblance to a gaping mouth, when squeezed on each side. *Toadflax* and *Snapdragon* are instances. Pl. 4. f. 8. 9. 10.

Gelatinous, jelly-like.

Geminis, in pairs.

Gemma, bud.

General Involucre (involucrum) a species of Calyx placed at the base of a general Umbel, as a *Carrot*, *Angelica*, or *Lovage*. It consists of one or more leaves. Pl. 6. f. 9. (*c. c.*)

Genus,
Genera, } See the Introduction.

Generic Description consists of an accurate description of the different parts composing a flower; and all those plants whose flowers agree with this description, are species of the same genus. (See the Introduction.)

Geniculatus, knee-jointed.

Geniculum, knee-joint; sometimes it also signifies simply a knot or joint without implying any bend.

Germen, or Seed-bud, the lower part of a Pistil. It is the rudiment of the seed-veſsel, or of the embryo fruit. See Pistil. Pl. 3. f. 2. (*d.*) f. 5. (*c.*) f. 7. (*i.*)

Gibbus, bulged, or bulging.

Gills (lamellæ) the thin plates on the under side of the Pileus or Hat of an Agaric. Well known in the common *Mushroom*.

Glaber, smooth.

Glands (glandulæ) secretory veſsels, differently situated in different plants. In the *Willow* they are placed at the margins of the leaves; in the *Bird's Cherry* and *Almond Tree* at the base of the leaves; in *Butterwort* and the *Sundew* upon the surface of the leaves, and in the *Plumb* on the inner side of the Calyx. Pl. 10. f. 6. (*c. c.*) pl. 11. f. 1 (*a. a. a. a.*)

Glass-shaped (cyathiformis) tubular, but dilated towards the top like a drinking-glaſs; as the cup of *Jacob's Ladder;* the summits of the *Field Southern-wood;* the Nectary of the *Nettle.*

Glaucous (glaucus) a kind of hoary, or grey bluish green, as the back of a *Cabbage* leaf. It is frequently called sea-green.

Globosus, globular.

Globular (globosus) like a round ball; as the cup of the *Burdock;* the seed-veſsel of the *Flax;* the seed of the *Pea;* the capsule of the *Poppy.* Pl. 5. f. 5.

Glochis, a barbed point.

Glomeratus, congregated.

Gluma, husk.

Glutinositas, glutinous.

Glutinous (glutinosum) covered with a slippery or adhesive slime.

Glossy (nitidus) smooth and shining, as the fruit of the *Sweet Briar:* the leaves of the *Holly, Ivy,* and *Box.*

Gnawed (erosum) as when an indented leaf appears as if it had also been gnawed or bitten at the edges. Pl. 7. f. 21.

Grain (granulum) an excrescence upon the valves of the Calyx of some of the *Docks,* in size and shape somewhat like a grain of corn. It is also called a Bead.

Grained (graniferus) bearing a grain, or bead.

Gramina, graſses.

Granulations (acini) the small berries, which joined together compose a large one, as in the *Mulberry, Blackberry,* and *Raspberry.*

Granulatus, beaded.

Gristly (cartilagineus) as in the edge of some leaves, being stronger and more transparent than the rest of the leaf.

Gymnospermia, seeds naked; the title of the first Order of the Claſs Didynamia.

Gynandria, Stamens on the Pistils. The 20th Claſs of the Linnæan System, but the plants of that claſs are now arranged amongst the remaining claſses, according to the number of their Stamens.

Habitatio, the natural place of growth of a plant in its wild state. This is now generally expreſsed by the word Habitat.

Hair-like (capillaris) slender, undivided, and cylindrical; as the filaments in *Plantain, Raygraſs, Reed,* and most of the graſses.

Hairs (pili) are supposed to be secretory ducts.

Hairs-breadth, see measure.

Halbert-shaped (hastatus) as the floral-leaves of the *Pansie;* the leaves of *Sheeps Sorrel* and *Cuckow-pint.* Pl. 7. f. 15.

Hamosus, hooked.

Hamus, hook.

Hands-breadth, palmus.

Hand-shaped (palmatus) resembling a human hand with the fingers expanded; as the leaves of *White Briony; Paſsion-flower;* and the roots of *Spotted Orchis.* Pl. 7. f. 22.

Hastatus, halberd-shaped.

Hat (pileus) the upper broad expanding part of *Fungusses.* In *Mushrooms* the hat is often called the flap. Pl. 1. f. H. (*c.*)

Hatchet-shaped, Leaf (dolabriforme) and like a hatchet or axe of unequal thickneſs.

Headed (capitulus) Stalk; when a stalk supports one compact knob or head of flowers upon its extremity, as in *Thrift.*

Heads (capitatus) of Flowers; when flowers grow together in compact knobs; as in *Peppermint, Watermint, Common Thyme.*

Heart (corculum) that part of a seed which is a future plant in miniature. Pl. 6. f. 3. (*b.*)

Heart-shaped (cordatus) a term used to expreſs the form of a petal, a leaf, &c. the leaves of *Waterlily, Deadnettle, Burdock,* and *Violet,* are heart-shaped. Pl. 7. f. 10.

Heart-arrow-shaped (cordato-sagittatum) applied to expreſs the shape of a leaf. Pl. 7. f. 14.

Helmet (galea) a term to expreſs the upper part of a gaping bloſsom, which bears some resemblance to a helmet. See the introduction to the Claſs Didynamia.

Hemispherical (hemisphericus) in the shape of half a globe; as the cup of the *Tansey.*

Heptandria, seven-stamened. The name of the seventh claſs.

Herbaceus (herbaceus) Stem; one that is succulent and tender, in opposition to one that is woody: it perishes annually down to the root. The *Pea* and the *Nettle* are instances. The stem of the *Gilliflower* is somewhat woody.

Hermaphrodite (hermaphroditi) flowers or florets; such as contain one or more Stamens, and also one or more Pistils, as is the case with the greater part of flowers.

Hexagonus, hexagonal, or 6-sided.

Hexagynia, having 6 Pistils.

Hexandria, six-stamened. The name of the sixth Claſs.

Hexapetalus, 6-petaled.

Hexaphyllus, 6-leaved.

Hians, open; in opposition to closed.

Hilum, eye, of a seed.

Hirsutus, rough with strong hairs; shaggy.

Hirtus, rough-haired.

Hispidus, hispid; rough with stiff bristly hairs.

Hoary (incanus) covered on one or both sides with a very fine white silvery looking substance.

Hollow (cavus) as is a straw.

Honey-combed (favosum, alveolatum) a receptacle divided into cells, open at the top, with a seed in each cell.

Honey-cup, see Nectary.

Hooded, see cone-shaped.

Hoof-shaped (ungulatus.)

Hook (hamus) a thorn or a bristle is sometimes hooked at the end.

Horizontal (horizontalis) a leaf or branch which grows from the stem pointing to the horizon, and parallel to the surface of the earth. Pl. 9. f. 5. (*d. d.*)

Horn-shaped (cornutus) like the Nectary or spur of the *Larkspur.* Pl. 5. f. 4. (*a.*)

Hunched, see bulging.

Husk (gluma) the Calyx and the bloſsoms of Graſses are called husks; they are thin, dry, and semi-transparent, like chaff; a husk consists of one or more leaves, called *Valves*, and, when contiguous to other parts of the flower, inclosing the Stamens, and Pistils, answers the purpose of a *Bloſsom:* but, when placed on the outer side, and inclosing the inner valves, as well as the Stamens and Pistils, it is called the Calyx. This kind of Calyx frequently contains several florets. See the plate of *Graſses.*

Hybrida, a plant produced by the Pollen of one flower fertilizing or impregnating the Germen of another flower, of a different species. These productions are called Hybrids, or Mules.

Hypocrateriformis, salver-shaped.

Jagged (laciniatus) **Leaves**; such as are variously divided into lobes, and these lobes again divided in an irregular manner. The *Pansie* is an instance. Pl. 7. f. 24.

Icosandria, 20-stamened; the name of the 12th Claſs in the Linnæan System, but now incorporated with the Claſs Polyandria.

Imberbis, beardleſs.

Imbricatus, tiled.

Imperfect (imperfectus) flowers, such as want either Anther or Pistil, or both.

Inæqualis, unequal.

Inanis, pithy.

Incanus, hoary.

Inch (pollex) see measure.

Incisus, snipt.

Inclinans, leaning.

Includens, inclosing.

Inclusus, inclosed.

Incompletus, incomplete.

INCOMPLETE (incompleti) FLOWERS; such as want either the cup or the bloſsom. The *Tulip* wants a cup; and the *Nettle* is without a bloſsom.

INCRASSATUS, thickest upwards.

INCUMBENS, fixed by the side when applied to Anthers; leaning or resting against, when applied to Stamens.

INCURVATUS, bowed inwards.

INDENTED (sinuatus) LEAF; the edges of an indented leaf are hollowed, or deeply scolloped, the lobes standing asunder as if part of the leaf had been cut out. The leaf of the *Oak* or the *Turnip* are familiar examples. See also pl. 7. f. 25.

INDISTINCT (obsoletus) not well defined.

INDIVIDUAL (proprius) BLOSSOM; the bloſsom belonging to a single floret in a compound flower. Thus in a *Carrot*, each floret is composed of five petals, which constitute the bloſsom of that individual floret. The individual bloſsoms in *Tansey* are all tubular; in *Dandelion* they are all long and strap-shaped. In the *Sunflower* they are tubular in the centre, and strap-shaped in the circumference. Pl. 4. f. 21. f. 26.

INDIVISUM, leaf undivided.

INERMIS, unarmed.

INFERUS, beneath.

INFLATED (inflatus) distended, as if inflated like a blown up bladder.

INFLATUS, bladder-shaped; or inflated.

INFLEXIBLE, see rigid.

INFLEXUS, bent inwards.

INFLORESCIENTIA, mode of flowering. See the Introduction.

INFUNDIBULIFORMIS, funnel-shaped.

INTEGER, entire.

INTEGERRIMUS, very entire. See entire.

IFTERNODIUM, the space between the joints.

INTERRUPTED (interruptus) broken in its regular form; as the spike of *Wood Betony;* the leaves of some species of the *Ladies Finger*. A spike may be interrupted by the intervention of leaves, or smaller sets of flowers, or by the naked stem appearing; a winged leaf may be interrupted by the intervention of smaller pairs of little leaves. Pl. 8. f. 55.

INTORSIO, twisting.

INTRAFOLIACEUS, within the leaves.

INVERSELY-HEART-SHAPED (obcordatus) with the point of the heart next to the stem; as the seed-veſsel of the *Shepherds Purse;* the petals of *Geranium* or *Marshmallow;* and the leaves of some of the *Trefoils*. Pl. 8. f. 69. where each of the leafits is so shaped.

INVOLUCELLUM, or partial Involucrum, is the Calyx surrounding the base of an Umbellule. Pl. 6. f. 9 (*d. d. d. d.*)

INVOLUCRUM, or FENCE, the Calyx of an Umbel. It is placed at some distance from the flowers. It is either *General* or *Partial*. The *Carrot* furnishes instances of both. The *General* Involucrum is placed under the Umbel; the *Partial* under the Umbellules. Pl. 6. f. 9. (*c. c.*) (*d. d. d. d.*)

INVOLUTUS, rolled inwards.

JOINT, articulus.

JOINTED (articulatus) STEM; a wheat straw is an instance familiar to every one. Pl. 10. f. 3.

——— LEAVES; as in the *Indian Fig*. Pl. 9. f. 3. (*a.*)

JUGA, pairs; Bi-juga, 2 pairs, Tri-juga, 3 pairs; applied to the leafits of a compound leaf.

IRREGULAR (irregularis) a term applied to compound flowers wherein the florets are not uniform; as in the *Carrot* and *Coriander*.

——— BLOSSOM. See REGULAR.

KEEL (carina) a name given to the lowermost petal in a butterfly-shaped bloſsom, from its supposed resemblance to the keel of a ship; see the introduction to the Claſs Diadelphia. See also pl. 4. f. 17. and f. 13. (*d.*)

KEELED (carinatus) bent like the keel of a ship or boat; as the Style of the *Pea;* the Calyx of *Canary Graſs*. Pl. 2. f. 10. (*a. a.*)

KIDNEY-SHAPED (reniforme) as the seed of the *French Bean*, the Anthers of the *Mallow;* the leaves of *Ground Ivy*, *Golden Saxifrage*, and *Meadowbout*. Pl. 7. f. 9.

KNEE-JOINTED (geniculatus) when a straw or stem is a little bent at the joints. Pl. 2. f. 21. the Awns.

KNOB (capitulum.) See HEAD.

KNOT (nodus) a joint; remarkable in the stems or straws of Graſses.

LABIATUS (flower) having lips.

LABIUM, lip.

LACERUS, ragged.

LACINIA, segments.

LACINIATUS, jagged.

LACTESCENT (lactescens) abounding with a milky juice.

LACUNOSUM, pitted.

LÆVIS, level; as a smooth even surface of a stalk or leaf, &c.

LAMELLÆ, gills.

LAMINA, a thin plate, or border.

LAMINATED (equitans) when the flat surfaces of leaves lie close one upon another.

LANA, wool.

LANATUS, woolly.

LANCEOLATUS, spear-shaped.

LANCEOLATO-OVATUM, spear-egg-shaped.

LANUGO, soft wool, or down.

LATERAL (lateralis) BRANCHES, growing from the sides of the stem; opposed to *terminating*.

Lateral Flowers; those which grow from the sides of the stems or stalks; thus the spikes of flowers in the *Common Speedwell* grow on lateral fruit-stalks, or on fruit-stalks proceeding from the sides of the stem.

Latticed (cancellatus) open like lattice-work.

Laxus, limber or loose, in opposition to crowded or compact.

Leaf (folium) the green leaves which are the lungs of plants, and the organs of motion. The leaf of a flower is called a petal.

Leafit, or little leaf (foliolum) one of the single leaves of a compound leaf.

Leaf-stalk (petiolus) the foot-stalk of a leaf. It supports the leaves but not the flowers. In the *Great Periwinkle* the leaf-stalks are very long. Pl. 9. f. 4. (*a. b. c.*)

Leafy (foliaceus) furnished with leaves.

——— **Calyx** (auctus) when the base of a Calyx is surrounded by a series of leaves, different from those which form the Calyx.

——— **Seed**; a seed that is surrounded by a thin leafy edge, as in *Cow's Madnep*.

Leather-like (coriaceus) tough and pliable like leather; e. g. the cup of the *Corn Cockle*, and most of the plants in the fifth division of the 24th Claſs.

Legumen, or shell; a seed-veſsel of two valves, wherein the seeds are fixed to one seam only; as in the *Pea*, and most of the plants in the fourth order of the Claſs Diadelphia. It is not unusual in common language to call these *Leguminous* Plants. Pl. 5. f. 16.

Lenticulare, spherically convex on both sides; resembling the seed of a *Lental*.

Leprosus, rough like the skin of a leper, generally applied to expreſs the ground or crust on which are formed the tubercles or saucers of the crustaceous Lichens.

Level (fastigiatus) when several branches or fruit-stalks grow to equal heights, so as to form a flat surface at the top; as in the flowers of the *Sweet William*.

Liber, the inner bark.

Lid (operculum) a cover to the Capsules of several of the Moſses; as in the *Bogmoſs*. Pl. 1. f. D. (*b.*)

Lignosus, woody.

Ligulatus, strap-shaped. Does not seem to differ from *linearis*,* unleſs it is that the latter is applied to the leaves, &c. and the former used exclusively to petals.

Limb (limbus) the upper spreading part of a petal, in bloſsoms composed of more than one regular petal. Thus in the *Wall-flower*, the upper flat broad part of the petal is called the limb; the lower slender part included within the cup is called the claw. Pl. 4. f. 11. (*b. b. b. b.*) f. 12. (*a. a.a. a.*)

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* The British Critic says the terms *ligulatus* and *linearis* differ in this respect; the former is cut off at the top, and the latter is drawn to a point there.

Limber (flaccidus) **Fruitstalk**, bending with the weight of its own flowers.

Limbus, limb.

Line (linea) the breadth of the white part at the root of the middle finger nail; about the tenth of an inch; see Measure.

Linear, strap-shaped.

Lineari-cuneiforme, strap-wedge-shaped.
Lineari-lanceolatum, strap-spear-shaped.
Lineari-subulatum, strap-awl-shaped.
} see spear-egg-shaped, &c.

Lineatus, streaked.

Linguiforme, or lingulatum; tongue-shaped.

Lip (labium) the upper or under division of a gaping bloſsom. The *Deadnettle* and the greater part of the plants in the Claſs Didynamia furnish examples. See the introduction to that claſs. See also pl. 4. f. 8. f. 9. and f. 10.

Little Fruit-stalk (pedicellus) the little foot-stalk that supports an individual flower, when there are several flowers upon one common fruit-stalk. Pl. 6. f. 7. (*a. a. a. a. a. a.*)

Lobed (lobatus) divided nearly half way down, into lobes which are convex at the edges and distant from each other; as the leaves of *Ladies-Mantle* and *Water-Elder*. P. 7. f. 19.

Lobes (lobum) the divisions of a *lobed* leaf; see **Lobed**. Lobes are rounded at the edges, and stand distant from each other. The leaves of the *Hop*, *Anemone*, *Hepatica*, and *Sycamore*, furnish examples. Pl. 7. f. 17. f. 19.

Loculamentum, cell.

Long (longus) a cup is said to be long, when it is equal in length to the tube of the bloſsom.

Lopped (truncatus) appearing as if cut off with a pair of scissors: the leaves of the *Great Bindweed* are lopped at the base, the petals of the *Periwinkle* are lopped at the end. Pl. 8. f. 63.

Lucidum, transparent.

Lunatum,
Lunulatum,
} crescent-shaped.

Lyratus, see

Lyre-shaped (lyratus) as the leaves of *Herb Bennet*, or Pl. 8. f. 62.

Male (masculi) **Flowers**, are such as contain one or more Stamens, but no Pistils; see barren.

Marcescens, shrivelling.

Marginatus, bordered.

Masculi, male (flowers.)

Matted (cæspitosus) thickly interwoven together, as the fibres in turf-bogs. Sometimes also, it signifies many stems rising from the same root.

Measures, when used to expreſs the size of any particular parts of plants, are generally expreſsed by mentioning the proportion which those parts bear to other parts, but sometimes reference is made to certain standards of measure; as

———— A **Hairs-breadth**, a 12th part of a line.

———— A **Line** (linea) the 12th part of an inch, or the breadth of the white at the root of the nail of the middle finger.

———— A **Nail** (unguis) about ½ an inch.

———— An **Inch** (pollex) the breadth of the broadest part of the thumb.

———— A **Hands-breadth** (palmus) about 3 inches, or the breadth of the four fingers.

———— A **Span** (spithama) the space between the end of the thumb and the fore-finger, when extended; about 7 inches.

———— **Palm** (dodrans) the space between the end of the thumb and the end of the little finger, when fully extended; about 9 inches. This is nearly the palm of foreign nations, and is something more than a quarter of the English yard.

———— A **Foot** (pes) from the outer bend of the elbow to the lower joint of the thumb; or from the inner bend of the arm, to the second joint of the thumb; about 12 inches.

———— A **Cubit** (cubitus) from the outer bend of the elbow to the end of the middle finger; about 18 inches, or half an English yard.

———— An **Arm** (brachium) from the armpit to the base of the middle finger; about 24 inches, or two feet.

———— A **Fathom** (orgya) about 6 feet, or the space between the ends of the fingers when the arms are both widely stretched out.

Medulla, pith.

Membranaceous (membranaceus) thin, skinny, and semi-transparent, like parchment.

———————— **Stem**; when the edges of the stem are bordered with a thin leafy substance, as in *Water Figwort*, and *Broad-Leaved Pease Everlasting*.

Mensura, measure.

Mid-rib, the principal nerve which runs from the base towards the end of a leaf, along its middle.

Monadelphia, united threads or filaments; the name of a claſs in the Linnæan System; see the introduction to that claſs.

Monandria, one Stamen; the name of the first claſs in the Linnæan System.

Monoecia, one house; the name of the 21st claſs in the Linnæan System. In the plants of this Claſs the Stamens and Pistils are in different flowers, but on the same plant. These plants are now distributed among the other Claſses, according to the number of their Stamens.

Monogynia, one Pistil in each flower. This circumstance characterizes an Order in several of the Claſses.

Monopetala, monopetalous.

Monopetalous (flower) having a bloſsom consisting of only one petal, as the *Convolvulus* or the *Primrose*.

Monophyllus, one-leafed.

Monosperma, one-seeded.

Monostachyos, a single spike.

Mosses (musci.)

Mouth (faux) the upper and opening part of the tube, in bloſsoms consisting of a single petal; as *Borrage, Houndstongue, Deadnettle*. Pl. 4. f. 9. (*d. d.*)

Mucronatum (leaf) sharp pointed at the end. Dagger-pointed.

Mules, see Hybrid.

Multangularis, many-cornered.

Multifidam, many-clefted.

Multiflores, many-flowered.

Multiloculare, many-celled.

Multipartita, having many deep divisions.

Multivalvis, many-valved; more than two.

Muricatus, covered with sharp points.

Musci, Moſses; the name of a natural aſsemblage of plants constituting the second Order of the Claſs Cryptogamia.

Muticus, awn-leſs.

Nail (unguis) see Measure.

Narrow (ligulatus) the florets in some species of compound flowers are tubular at the bottom, but flat and narrow like a strap or fillet at the top. In *Dandelion* the florets are all narrow: in the common *Daisie* the florets in the circumference only, are narrow. Pl. 4. f. 10. f. 21. f. 24. The term *linearis* (strap-shaped) seems to convey the same idea, but has been more particularly appropriated to leaves.

Naked (nudus) destitute of leaves; as the stalk of the *Tulip* or *Cowslip*.

—— **Mouth**: when the mouth of the tube of a bloſsom is not closed by valves or hairs. The mouth of the bloſsom of *Borrage* is closed by five valves, or teeth: but that of *Gromwell* is open and *naked*.

—— **Receptacle**; neither chaffy nor hairy; as that of the *Daisie*.

—— **Leaves**; leaves destitute of hairs.

Nap, or **Nappy**, see Cottony, from which this term does not appear to differ.

Natans, floating.

Navicularis, boat-shaped.

Nectarium, nectary.

Nectary, or **Honey-cup**, a part of a flower designed to secrete and contain honey. In flowers that have only one petal, the tube of the bloſsom contains the honey; or else it is contained in a sort of horn-shaped appendage, as in the *Butterwort*. In the *Violet*, the *Larkspur*, the *Columbine*, and the *Fumitory*, it is a sort of spur, or horn. In the *Ranunculus*, the *Lily*, and the *Crown Imperial*, it is a hollow cavity in the substance of the petals. In the *Daffodil* and *Hellebore* it is tubular. In the *Fraxinella* and *Campanula* it is fixed to the Anthers; in the *Gilliflower* and the *Turnep*, it is placed on the Germen in form of a gland. Its structure is no where more singular or beautiful than in the *Graſs of Parnaſsus*. Pl. 5. f. 1. (*a.*) f. 2. (*a. a. a. a. a.*) f. 3. (*a. a.*) f. 4. (*a.*)

Nervosum, fibrous (leaf.)

Neutral flowers or florets; such as contain neither Stamens nor Pistils, and of course produce no seeds.

Nidulantia (semina) seeds dispersed in pulp.

Nitidus, gloſsy.

Nodding (nutans) **Flower**; when the fruit-stalk is bent near the end, as in the *Chequered Daffodil*, *Narciſsus*, and *Jonquil*. Pl. 3. f. 9. but in a smaller degree than is meant by the term crooked.

Nodus, knot.

Notched (emarginatus) at the **End**; as the petals of the *Small Campion* and *Dove's-foot Crane's-bill*; the little leaves of *Vetch*; the leaves of the common *Maple*. Pl. 7. f. 16. 36.

Notched (runcinatus) **Leaves**; the edges cut something like the teeth of a large timber saw. *Dandelion*, *Broad-leaved Watercreſs*, *Long-rooted Hawke's-eye*, and *Smooth Succory Hawkweed*, are examples.

Nucleus, a kernel.

Nudus, naked.

Nutans, nodding; but applied to a panicle more properly drooping.

Nux, nut.

Nut (nux) a seed covered by a hard woody shell; e. g. the *Hasel Nut*. This woody shell is sometimes covered by a soft pulpy or fleshy substance, as in a *Peach* or *Apricot*, and then it is called a stone. Pl. 5. f. 21. (*b. b.*)

Ob, inversely; thus,

Ob-conicum, signifies inversely conical.

Ob-cordatum, inversely heart-shaped; which see.

Obliquus, slanting.

Oblong (oblongus) considerably longer than broad, and narrowed, though rounded at the ends; as the leaves of the *Daisie*; the Anthers of the *Honeysuckle*. Pl. 7. f. 5.

Oblongiusculus, rather oblong.

Oblongo-ovatum, oblong-egg-shaped.

Oblong-egg-shaped, oblong at the base, but egg-shaped more towards the end.

Ob-ovatum, inversely-egg-shaped; that is, egg-shaped, but with the small end downwards.

Obsoletus, indistinct.

Obtusus, blunt.

Obtusiusculus, bluntish.

Octandria, 8-stamened. The name of a Claſs.

Octofidus, 8-clefted.

Octogynia, 8 Pistils; the name of some of the Linnæan Orders.

Octo-partitus, having 8 divisions.

Open (patulus) standing open, or spreading wide.

Operculatum, covered with a lid.

Operculum, lid.

Opposite (oppositus) growing on the opposite sides of the stem, but at the same height from the ground, as the leaves of the *Nettle*. In pl. 9. f. 5. all the leaves are opposite.

Oppositifolium, opposite the leaf.

Oppositus, opposite.

Orbiculatus, round and flat.

Ordo, order; see the Introduction.

Ore (peranthii) rim of the cup.

Orgya, a fathom.

Osseus, hard as bone.

Oval (ovale) leaf; as the leaves of *Box*. Pl. 7. f. 4.

Ovato-lanceolatum, egg-spear-shaped.

Ovato-oblongum, egg-shaped, but lengthened out towards the end.

Ovato-subulata (capsule) egg-awl-shaped. That is, egg-shaped at the base, but tapering into awl-shaped towards the other extremity.

Pagina, surface of a leaf.

Pairs (binatus: geminus) leaves, or fruit-stalks, sometimes grow in pairs. Pl. 7. f. 50. See also Juga.

Palate (palatum) the inner part of the mouth of gaping bloſsoms. Pl. 4. f. 10. (c.) It is frequently closed, or nearly so, by a projecting plait of the lower lip; this part is called the palate. Pl. 4. f. 10. (c.)

Palæa, chaff.

Paleaceus, chaffy.

Palm (dodrans) see measure.

Palmatus, hand-shaped.

Palmus, hands-breadth.

Panduriformis, fiddle-shaped.

Panicle (panicula) an aſsemblage of flowers growing without any very regular order, upon fruit-stalks which are variously subdivided; e. g. *Oats*. Pl. 6. f. 6. It is said to be

——— **Spreading**; when the partial fruit-stalks diverge and stand wide asunder, as in the *Common* and *Reed Meadow-graſs*.

——— **Compact**; when they stand near together, as in the *Sheeps Fescue*, and *Purple Hairgraſs*.

Panicled (paniculatus) **Bunch**; an aſsemblage of flowers partaking the properties of a panicle and a bunch. See those terms. *Golden Rod* may serve as an example.

Panicled Spike; an aſsemblage of flowers partaking the properties of a panicle and a spike; as the *Wall Fescue*, and the *Manured Canary Graſs*, in which the collections of florets resemble a spike in their general appearance, but the florets are furnished with fruit-stalks, shorter than themselves.

Papilionaceus, butterfly-shaped.

Papillosus, pimpled.

Pappus, down.

Parallelus, parallel.

Parasitical (parasiticus) **Vegetables**; not taking root in the earth, but growing upon other vegetables. Thus *Misletoe* is found to grow upon the Apple Tree, the Pear, the Lime, the Elm, the Poplar, the Hawthorn, and the Buckthorn, but never upon the ground.

Partial (partialis) expreſsive of a part, not of the whole. Thus the Umbellules, or small Umbels, composing a large Umbel, are sometimes called partial Umbels; and the Involucellum or fence at the base of these partial Umbels, is sometimes called the partial Involucre. See pl. 6. f. 9. (*d. d. d. d.*)

Partition (diſsepimentum) the substance dividing seed-veſsels into different cells. Thus the seed-veſsel of *Jacob's Ladder* is divided into three cells; and if you cut a Lemon acroſs, you will plainly see the partitions that divide it into nine cells. See also pl. 5. f. 12 (*b. b.*) f. 14. (*b. b. b. b.*)

Partitus, divided.

Patens, expanding.

Patulus, open.

Pectinatum, comb-like, leaf.

Pedatum, bird-footed.

Pedicellus, little fruit-stalk, or pedicle.

Pedicle, a little fruit-stalk, or partial fruit-stalk, being that part of a compound or branched fruit-stalk, which is the immediate support of a single flower or floret, or spiket. It is also sometimes used to expreſs the little pillar which supports the down in some of the compound flowers.

Pedunculatus, growing on a fruit-stalk, opposed to sitting.

Pedunculus, fruit-stalk.

Pelta, target.

Peltatum, target-shaped (leaf.)

Pencil-shaped (penicilliformis) like a camel-hair pencil; as the summits of *Millet*, or the appendages to the bloſsoms of the *Meadow Milkwort*. Pl. 2. f. 11. (*c. c.*)

Penicilliformis, pencil-shaped.

Pendant (pendulus) hanging down; as the bunches of the *Red Currant*; the cones of the *Scotch Fir*; the flowers of the *Columbine*.

Pentagonus, 5-cornered.

Pentagynia, 5 Pistils; the name of an Order in several of the Claſses.

Pentandria, 5-stamened; the name of one of the Claſses.

Pentapetala, 5-petaled.

Pentaphyllus, 5-leaved (cup.)

Perennial (perennis) continuing for several years; at least more than two.

Perfect (completus) **Flower**, having both a cup and a bloſsom; and also one or more Stamens and Pistils.

Perforated (perfoliatus) **Leaves**; when the stem seems to go through the leaves; as in the *Round-leaved Thorough-wax.* Pl. 9. f. 4. (*g.*)

Perfoliatum, perforated leaf.

Perianthium, cup.

Pericarpium, seed-veſsel.

Perichætium, an Involucrum surrounding the base of the fruit-stalk in Moſses.

Peristoma, the fringe at the mouth of the Capsule of Moſses. Pl. 14. f. 27. (*a.*)

Permanent (persistens) **Cup**, remaining till the fruit is ripe; as in *Borrage; Currant: Pink;* and *Deadnettle.*

Persistens, permanent.

Personatus, gaping (bloſsom.)

Pes, a foot; see Measure.

Petaliformis, resembling a petal.

Petals (petala) the leaves which constitute the bloſsom are called **Petals**, to distinguish them from the other leaves of the plant. See pl. 3. f. 2. (*a. a. a. a. a. a.*) Pl. 4. f. 12. (*a. a. a. a.*)

Petiolaris, fixed to the leaf-stalk.

Petiolatus, having leaf-stalks.

Petiolus, leaf-stalk.

Pileus, or **Cap**; the spreading part which forms the top of several of the Fungi, and covers the fructifications. Thus in the common *Mushroom* it covers the gills, and is sometimes also called the Hat, and, when fully expanded, the Flap.

Pili, hairs.

Pilosus, hairy.

Pillar (stipes) the little shaft or pedicle upon which the down of some seeds is placed, as in *Dandelion.* Pl. 1. f. 11. (*b.*) Pl. 4. f. 22. (*i.*) Pl. 6. f. 2 (*d.*) *Stipes* is also used to expreſs the stem of an Agaric, &c.

Pimpled (papillosus) beset with pimples, or hard little protuberances.

Pinna, a leafit of a winged leaf.

Pinnatifidus, with winged clefts.

Pinnatus, winged, **leaf**: whereas alatus relates to the **stem**, or **leaf-stalk**.

Pinnulatus, when a leafit of a winged leaf is again subdivided.

Pistil, or **Pointal**; a part of a flower, compoſed of the **Germen**, the **Style**, and the **Summit**. Look into the blossom of a *Plumb* or *Cherry*, and in the centre you will see the Pistil surrounded by the Stamens. In the bloſsom of the *Apple*, or *Pear*, you will perceive five Pistils in the centre. In the *Deadnettle* you will find the Pistil covered by the upper lip, and forked at the top. In the centre of the bloſsom of the *White Lily*, the Pistil stands surrounded by six Stamens. In this flower the **Germen**, which is the lower part of the Pistil, is long, cylindrical, and marked with six furrows; next above this part is the **Style**, which is long and cylindrical; and, at the top of the Style is the **Summit**, which is thick and triangular. See pl. 3. f. 2. (*d. e. f.*) f. 7. (*i. k. l.*) f. 5. (*c. d. e.*)

Pistilliferous flowers or florets, such as contain one or more Pistils, but no Stamens.

Pitcher-shaped (urceolatus) swelling or bellying out like a common jug.

Pith (inanis) a soft spongy substance filling up the cavity in some plants; as in the *Rush* and the *Elder*.

Pitted (lacunosum) when the surface of a leaf lies in hollows between the veins.

Plaited (plicatus) folded in plaits; as the bloſsom of *Convolvulus*; the cup of *Thrift*; and the leaves of *Ladies-mantle*. Pl. 7. f. 37.

Planus, flat.

Plenus (flos) a double-bloſsomed flower.

Plicatus, plaited.

Plumosus, feathered.

Pod (siliqua) a seed-veſsel of two valves, within which the seeds are fixed alternately to each seam. When long, it is called a long pod, as in *Gilliflower*; when broad and short, it is called a short pod, or pouch, as in *Honesty* and *Shepherd's Purse*. Pl. 5. f. 10. f. 11. f. 12. f. 13.

Pointal, see Pistil.

Pointing from two opposite **Lines**. See *two-rowed*.

——— one **Way** (secundus) as the flowers of the *Foxglove*, the *Cock's-foot*, and the *Sheep's Fescue Graſs*. Pl. 2. f. 13. (*d.*)

Pollen, Farina, or Dust, a fine powder contained in the Anthers of flowers: it is too minute for the naked eye to examine, but by the aſsistance of a microscope, it appears very different in different plants: Thus in the *Bloody Geranium* it is a perforated globule; in the *Marshmallow* like the wheel of a watch; in the *Pansie* it is triangular; in the *Narciſsus* kidney-shaped; and in *Comfrey* the globules are double. Pl. 3. f. 5. (*f.*) An Anther discharging its pollen; f. 8. a particle of the pollen greatly magnified.

Pollex, an inch; see measure.

Polyadelphya, Stamens in 3 or more sets, being united by the filaments. The title of a Claſs, which see.

POLYANDRIA, many stamens. The title of a Claſs, which see.

POLYGAMIA, the title of the 23d Claſs in the Linnæan system. The plants it contained are now distributed amongst the other claſses according to the number of the Stamens.

POLYGAMIA-NECESSARIA, the title of the 4th Order of the Claſs SYNGENESIA. See introduction to that Claſs, as also for

———— ÆQUALIS.

———— SUPERFLUA.

———— FRUSTRANEA.

———— And SEGREGATA.

POLYPETALUS, many petaled, (flower,) having more than one Petal.

POLYPHYLLUS, many leaved, (Calyx, &c.) of more than one leaf.

POLYSPERMA, many seeded.

POLYSTACHYUS, many spiked.

POMUM, a fleshy or pulpy seed veſsel without valves, covering a Capsule which contains the seeds; as in the Apple and Pear. Pl. 5, f. 20.

PORES (pori) little holes. At the inner side of the base of the petals, in all the species of *Ranunculus* or *Crowfoot*, are little pores filled with honey. See also pl. 3. f. 3. (*k.*)

POSTICUS, hinder part.

POUCH, a short pod; see Pod.

PRÆMORSUS, as if bitten off.

PRESSED TO (adpreſsus) see Contiguous.

PRICKLES (aculei) sharp-pointed weapons of defence, formed from the bark, and not from the woody part of a plant. The prickles of the *Rose* are a familiar example. Pl. 10. f. 2. (*a. a*) and (*b. b.*)

PRICKLY (aculeatus) armed with prickles.

PRICKLY-POINTED (cuspidatus) ending suddenly in a hard sharp point.

PRISMATICUS, see

PRISM-SHAPED (prismaticus) differing from cylindrical in the circumference being angular, as the cup of the *Pulmonaria*.

PROCUMBENS, trailing.

PROLIFEROUS (proliferi flores) BLOSSOMS; when one grows out of another, as is not uncommon in the *Polyanthus*.

PROLIFEROUS SHOOTS; when one shoot springs out of another, as in the *Hypnum proliferum*.

———— STEM; when an otherwise unbranched stem sends out a number of branches from its top.

PROMINENS, projecting (partition) when it stands out beyond the valves.

PROMINENT (prominens) the partition of a seed-veſsel is said to be prominent when it projects beyond the valves, as in *Cabbage*, and many other plants of the Tetradynamia Claſs.

PRONUS, the under surface of a leaf.

Proprius, belonging to an individual.

Props (fulcra) these are of 7 kinds, viz. Stipulæ, Floral-leaves, Thorns, Prickles, Tendrils, Glands, and Hairs. See those Terms.

Protruding (exsertus) standing out of the bloſsom as do the Stamens of some of the Erica's.

Protuberances (torosus) in seed-veſsels; occasioned by the swelling of the inclosed seeds. They are sufficiently evident in the pods of *Mustard*, and in some sorts of *Beans*.

Pubes, cloathing.

Pubescent (pubescens) cloathed with soft wool or hair.

Pulposus, pulpy.

Pulpy (pulposus) soft and tenacious. A *Cherry* is pulpy, but an *Apple* is fleshy.

——— **Seed-vessel**, see Drupa.

Pulveratus, dusted.

Punctatus, dotted.

Purse-shapen (scrotiformis) like a purse that draws together with strings at the top; as the seed-veſsel of the *Purple Marshlocks*, or the Nectary of the *Satyrion*.

Quadrangularis, 4-corned, (-tem.)

Quadridentatus, 4-toothed.

Quadrifidus, 4-clefted.

Quadrilobum, 4-lobed.

Quadriloculare, 4-celled.

Quadripartitum, with 4 divisions.

Quadrivalve, 4-valved.

Quaterna, by fours; as the leaves Pl. 9. f. 3. (c.c)

Quina, by fives.

Quinatum, 5-leaved.

Quinquangulare, 5-cornered.

Quinquefidum, 5-clefted.

Quinquelobum, 5-lobed.

Quinqueloculare, 5-celled.

Quinquepartitum, with 5 divisions.

Quinquevalve, 5-valved.

Racemus, bunch.

Rachis, spike-stalk.

Radiate (radiatus) a sort of compound flowers in which the florets of the centre differ in form from those in the circumference. Thus the *Daisie* and *Sunflower* are radiate flowers; the florets in the centre being all tubular, but those in the circumference are narrow or strap-shaped.—Pl. 4. f. 24. Umbelliferous flowers are also called radiated when the florets in the circumference of the Umbel or Umbellule are larger than those in the center. In this case too, the outer petals are larger than the inner petals of the same floret.

——— **Summits**, placed in a circle; as in the *Poppy*. Pl. 5. f. 5. (*b.*)

Radicalis, issuing immediately from the root.

Radicans, striking root.

Radii, rays; the outer florets in a radiate compound flower. They may be called the florets of the circumference, and the inner ones the central florets.

—— **Spokes**, the fruitstalks of an Umbel or Umbellule; which see.

Radix, root.

Rameus, belonging to a branch.

Ramosus, branched.

Ramosissimus, very much branched.

Ramus, a branch.

Ramulus, the branch of a branch.

Receptacle (receptaculum) one of the parts neceſsary to compose a flower. It is the base, or seat, upon which the other parts of a flower are placed. Pl. 4. f. 11. (c.) f. 23. (*a.*) The inner part of a Capsule to which the seeds are attached is also called a Receptacle. Pl. 5. f. 7. f. 9.

Reclinatus, reclining.

Reclining (reclinatus) bent back a little, so that the extremity is lower than the base; as the leaves in Pl. 9. f. 5. (*e. e.*)

Rectus, straight.

Recurvatus, recurved, or bowed back.

Reflected (reflexus) bent back, rather angularly; as the segments of the cup of the *Currant;* the petals of the *Flower de Luce;* the bloſsoms of the *Hyacinth* and *White Lily.* Pl. 4. f. 5.

Refractus, bent back as if broken.

Regular (regularis) **Blossom**; one that is regular in the figure, size, and proportion of its parts; as the *Jeſsamine* and *Syringo.*

Remote (remotus) **Whirls**; when there is a considerable length of stem between each whirl. Pl. 6. f. 11. (*a. a. a.*)

Reniforme, kidney-shaped.

Repandum, serpentine.

Repens, } creeping.
Reptans, }

Replicatus, folded or plaited, so as to form a groove or channel; as in the legumen of *Astragalus hypoglottis.*

Resupinatum, horizontally turned upside down.

Reticulata, veined like net-work.

Retrofractus, broken back.

Retrórsum (sinuatum) crookedly bent back.

—————— (serratum) inversely serrated.

Retusum, bluntly notched at the end; but it sometimes means merely blunt, as the seeds of the *Lycopsis.*

Revolutus, rolled back.

Rhombeus, diamond-shaped.

Rhomboideus (rhomboidal) nearly diamond-shaped, but broader one way than the other.

Rigid (rigidus) inflexible; not easily bending: opposed to limber and flexible.

Rimosus, full of cracks.

Ring (annulus) the remains of the Curtain surrounding the Stem of an *Agaric* or a *Boletus*, after the other part has disappeared. Pl. 1. f. H. (*a.*)

Ringens, gaping.

Rising, upwards (aſsurgens) differs from ascending, in first inclining downwards, and then gradually rising upwards.

Rod-shaped (virgatus) having many slender, and nearly straight parallel branches or shoots.

Rolled back (revolutus) with respect to the leaf in general, rolled downwards, as the ends of the leaves of *Sweet William*: pl. 9. f. 5. *(f. f.)* with respect to the edges, rolled under towards the rib of the leaf, as in the leaves of *Rosemary*, and the young leaves of the *Osier*; with respect to *Summits*, it signifies rolled back spirally, as the Summits of the *Pink*. Pl. 1. f. 19. (*c. c.*)

Root (radix) may be *Fibrous*, *Bulbous*, *Tuberous*, *Bundled*, *Beaded*, *Spindle-shaped*, or *Creeping*. See those terms. See also pl. 11.

Root-leaves (radicalia) the leaves which proceed immediately from the root, without the intervention of a stem. They often differ in shape and size from the other leaves. The *Field Bellflower* furnishes an example. Pl. 9. f. 7.

Rostellum, the descending part of the heart or corcle of a seed.

Rostratum, having a bill.

Rostrum, a bill, or beak.

Rotata, wheel-shaped. (bloſsom.)

Rough, asper,

Round (globosus) like a ball, see globular.

——— (orbicularis) round and flat. Pl. 7. f. 1.

Ruffle, or **Ring**, the part of the Curtain of an Agaric which adheres to the Stem after the outer part of it has vanished.

Rugosum, wrinkled.

Runcinatum, notched.

Rundle, see Umbel.

Rundlet, see Umbellule.

Runner (flagellum) a barren twig or shoot, lying upon the ground, as in the *Garden Strawberry*, and *Stone Bramble*.—They are sometimes called Wires.

Running (along the Stem) see Decurrent.

Sagittarum, arrow-shaped.

Salver-shaped (hypocrateriformis) the shape of a bloſsom of one petal, the lower part of which is tubular, the upper part flat and expanded; as the bloſsom of the *Periwinkle*, and the *Mouse-ear Scorpion Graſs*. Pl. 4. f. 1.

Sap, see Alburnum.

Sarmentosus, having runners.

Saucer (scutellum) a sort of fructification of some of the Lichens; it is circular and concave, like a china saucer. Pl. 1. f. F.

Scaber, rough like a file.

Scabrities, roughneſs.

Scaly (squamosus) like the skin of a fish; as the cups of *Burdock*. Pl. 4. f. 25. (*a.*)

Scandens, climbing.

Scapus, stalk, such as supports the flower, but not the leaves of a plant, and rises immediately from the root; as in *Narciſsus*, *Hyacinth*, &c. Pl. 6. f. 4.

Scariosus, skinny.

Scarred (cicatrisatus) marked with scars where the leaves have fallen off, as are the Stems of some of the *Spurges*.

Scrobiforme, like fine saw-dust, as are the Seeds of the Orchis.

Scrotiforme, purse-shaped.

Scollopped (crenatus) inspect the edges of the leaves of *Bird's-eye* and *Gill*, and you will have a true idea of this term; see also Pl. 7. f. 38. 35. and 34. Some leaves are doubly scollopped, as in Pl. 7. f. 33.

Scored (striatus) marked with superficial parallel lines, as the cup of a *Pink*, or the stems of *Butchersbroom*.

Scurfy (squarrosus) applied to a cup in compound flowers, the scales of which are bent outwards at the ends, so as to give the whole a rough ragged appearance.

Scutellum, a saucer.

Scymetar-shaped, leaf (acinaciforme) a long fleshy leaf, thick and straight at one edge, thin and arched at the other.

Scyphifer, glaſs-shaped; as is the fructification of some of the *Lichens*.

Sea-green, see glaucous.

Seam (sutura) the line formed by the union of the valves of a seed-veſsel. Thus the pod of a *Pea* is a seed-veſsel of two valves, and the two seams where the valves join are sufficiently conspicuous: As also in pl. 5. f. 6.

Secundus, pointing one way.

Securiformis, shaped like an axe.

Seed (semen) a deciduous part of a vegetable, containing the rudiments of a new plant. It consists of the Heart, the Seed-lobes, the Eye, and the Seed-coat. See those terms. Sometimes it is crowned with the cup of the flower, and sometimes it is winged with a down, or with a thin expanded membrane, which enables the wind to waft it abroad. See pl. 4. f. 22. and pl. 6. f. 3.

Seed-bud, see Germen.

Seed-coat (arillus) the proper coat of a seed which falls off spontaneously. It is remarkable in the *Spindle-tree*, *Hound's Tongue*, the *Cucumber*, the *Fraxinella*, and the *Mallow*.—Some seeds have only a dry covering or skin, as the *Bean*. Pl. 6. f. 1. (c. c.)

Seed-cover (calyculus) the real cover of the seed.

Seed-leaves, see Seminal-leaves.

SEED-LOBES (cotyledones) the perishable parts of a seed, designed to afford nourishment to the young plant when it first begins to expand. They furnish the Seminal leaves. A Bean, after being soaked in water, or moist earth, easily parts with its external skin, and divides into two parts, called the SEED-LOBES. Pl. 6. f. 3. (*a. a.*)

SEED-VESSEL (pericarpium) a veſsel to contain the seed. It is of several kinds; as a CAPSULE; a POD; a LEGUMEN; an AIR-BAG; a DRUPA, including a nut or stone; a POMUM; a BERRY; and a CONE. See those terms. See also pl. 5. from f. 5. to f. 21.

SEGMENT (lacinium) the small parts of a leaf, cup, or petal, included between the incisions.

SEGREGATA (polygamia.) See the introduction to the claſs Syngenesia.

SEMEN, seed.

SEMI-AMPLEXICAULIA, half, or in part only, embracing the Stem

SEMI-CYLINDRICAL (semi-teres) if the trunk of a tree was sawed lengthwise through the middle, each part would be semi-cylindrical. The stalk of *Ramsons* is in this shape.

SEMI-FLOSCULOSI, a term used to expreſs such compound flowers of the claſs Syngenesia as are wholly composed of strap-shaped florets.

SEMINAL-LEAVES; those which arise immediately from a seed, or rather from the seed-lobes.

SEMI-ORBICULATUM, in the shape of half a globe.

SEMI-SAGITATA, shaped like half the head of an arrow, as are the Stipulæ of some plants.

SEMI-TERES, semi-cylindrical.

SEMPERVIRENS, evergreen.

SENIS (foliis) growing in sixes.

SEPARATE (monoecia) Stamens and Pistils are said to be separate when they are found upon the same plant, but in different flowers. Thus in the *Box*, the *Birch*, the *Cucumber*, and the *Melon*, some of the flowers contain Stamens, and others contain Pistils; but none of them contain both together. Pl. 1. f. 21.

SERICEUS, silky.

SERPENTINE (repandus) the edge of some leaves is formed like a serpentine line; without any angles or corners. Pl. 7. f. 29.

SERRATED (serratus) like the teeth of a common saw; as are the edges of the leaves of the *Apple*, the *Pear*, the *Spearmint*, the *Deadnettle*, the *Sneezewort* or *Goosetongue*, &c. Pl. 7. f. 31. Some leaves are DOUBLY-SERRATED; that is, the teeth are again cut into other little teeth. The *Common Elm* is an example. Pl. 7. f. 32.

SERRULATED (serrulatum) very minutely serrated.

SESSILIS, ſitting.

Setaceus, bristle-shaped.

Setæ, bristles.

Setosus, bristly, or set with bristles.

Sexangulare, 6-sided, or cornered.

Sex-fidus, 6 cleft.

Sex-loculare, 6-celled.

Shaft, see Style.

Shaggy, (hirsutus) rough with stiff hairs.

Sharp, see Acute.

Sharp-pointed (mucronatum) tapering into a hard sharp point.

Sheath (spatha) a species of Calyx, exemplified in the *Crocus*, the *Iris*, and the *Daffodil*. Pl. 3. f. 9. (*a*. *a*) See also the Introduction.

Sheathed Fruit-stalk (spadix) one that is furnished with a sheath. Pl. 3. f. 9. (*d*.)

Sheath-scale, a membrane found at the top of the sheathes which surround the stem of Graſses, just where the sheath ends, and the proper leaf begins. It is generally white; tender and brittle when dry.

Sheathing (vaginans) Leaves; when the base of a leaf enfolds the stem; as in most of the *Graſses*. Pl. 9. f. 4. (*i*.)

Shedding (caducus) continuing but a short time. Applied to a Calyx, it signifies that it falls off before the bloſsom; as in *Poppy*.

Shell, see Legumen.

Shoot (surculus) the branch of a *Moſs*.

Short (abbreviatus) a cup is said to be short, when it is shorter than the tube of the bloſsom, as in pl. 4. f. 7. (c.)

Shrivelling (marcescens) fading and withered, but not falling off. e. g. the bloſsoms of *Plantain* and *Stichwort*.

Shrubby (fruticosus) somewhat woody and perennial, as the stems of the *Rose*.

Silicula, a broad and short pod, or pouch.

Siliculosa, the name of the first Order of the Tetradynamia Claſs, containing the plants with a broad short pod or pouch.

Siliqua, a pod, or more particularly a long pod.

Siliquosæ, the second Order of the Claſs Tetradynamia, containing the plants whose seed-veſsel is a long pod.

Silky (sericeus) set with very soft hairs lying close, so as hardly to be felt.

Simple (simplex) undivided.

—— Stem; one that is undivided: or only sending out small branches.

—— Leaf; when there is only one upon a leaf-stalk.

—— Cup; one that consists of a single series of segments: e. g. *Goat's-beard*.

—— Stalk; undivided, as the stalk of the *Tulip*, and that of *Thrift*.

Simplicissimus, very simple, absolutely undivided.

Single (unicus) one flower only upon a stalk, as the *Tulip*.

Sinuato-angulosum, indented and angular.

Sinuato-dentatum, indented and toothed.

Sinuatus, indented.

Sitting (seſsilis) **Leaves** have no leaf-stalk, as *Spearmint* and *Hounds-tongue*. Pl. 9. f. 4. (*d.*)

——— **Flowers**, are those which have no **Fruit-stalk**, as the flowers of *Mezereon*.

Skinny, or **Skin-like** (scariosus) tough, thin, and semi-transparent, like gold-beater's skin; as the cup of *Thrift*.

Slanting (obliquus) straight, but in a direction between horizontal and perpendicular.

Smooth (glaber) surface smooth to the touch, without any hairineſs, or any rough inequalities; opposed to *rough*, *prickly*, or other inequalities occasioned by prominencies on the surface.

Snipt (incisus) cut at the edges without any regularity.

Solid (solidus) **Stem**; without a cavity; opposed to hollow.

——— **Root**; fleshy and uniform, as that of a Turnep.

Solitary (solitarius) only one in a place; as but one flower on a fruit-stalk, or only one fruit-stalk proceeding from the same part of a plant.

Sooty (fuliginosus) dark and dirty as if sooted, as are some of the *Lichens*.

Spadix, a sheathed fruit-stalk.

Span (spithama) a measure of nearly 7 inches; see Measure.

Sparsus, scattered.

Spatha, sheath.

Spatulatus, battledore-shaped.

Species, see the Introduction.

Spear-shaped (lanceolatus) as the leaf of *Ribwort Plantain*, and *Spearmint*. Pl. 7. f. 6.

Spear-egg-shaped (lanceolato-ovatum) applied to a leaf, &c. signifies that it is shaped like a spear towards the base, and like an egg towards its extremity. So in the following, and other compound terms of this kind, the first term applies to the base of the leaf, or the part next the stem or branch, the second term to the part towards the extremity. Thus *ovato-lanceolatum*, egg-spear-shaped, is just the reverse of spear-egg-shaped. **Lineari-lanceolatum**, strap-spear-shaped, &c.

Specific Character; one or more circumstances of a plant, sufficient to distinguish it from every other plant of the same genus. The Specific Characters are generally taken from the leaves or stem; sometimes from the flowers, but seldom from the roots.

Spherical (spærica) globular.

Spica, } see Spike and Spiket.
Spicula, }

Spike (spica) a composition of flowers placed alternately on each side of a common simple fruit-stalk, and not standing upon little fruit-stalks. *Great Mullein*, *Agrimony*, and many of the *Graſses* have their flowers collected into spikes. P. 6. f. 5.

Spiket (spicula) or Little Spike, constituting a part of a larger composition of florets. Its use is mostly confined to the *Graſses*, and to expreſs the composition of their florets contained within one common Calyx.

Spike-stalk (rachis) a long, rough, slender receptacle, upon which the flowers composing a spike are placed. Take a spike, (or as it is frequently called, an ear) of wheat; pull off all the seeds and chaff; what remains is a Spike-stalk. Pl. 2, f. 24. (*c. c.*)

Spina, a thorn.

Spindle-shaped (fusiformis) a gradually tapering Root. e. g. a *Carrot*, or *Radish*. Pl. 11. f. 6.

Spinescens, becoming hard and thorny.

Spinosus, thorny.

Spiral (spiralis) twisted like a corkscrew. Pl. 10. f. 6. (*a. a.*)

Spithama, a span.

Spokes (radii) the fruit-stalks of flowers collected into Umbels, or Umbellules; see those terms. They spring from one point, and diverge like the spokes of a wheel. Pl. 6. f. 9. (*e. e. e. e.*)

Spreading (diffusus) not rising high, but spreading wide upon the ground; as the stems of *Fumitory* and *Pansie*. Sometimes also applied to a panicle, wherein the little spikes and fruit-stalks stand wide and distant.

Spur (calcar) shaped like the spur of a cock, as the Nectaries of the *Larkspur*.

Squamatus, } scaly.
Squamosus, }

Squarrosus, scurfy.

Stalk (scapus) that species of trunk which elevates and supports the flowers, but not the leaves of a plant. It differs from the Fruit-stalk, for that springs from the stem, or branches; but this rises immediately from the root; as in *Narciſsus*, *Lily of the Valley*, and *Hyacinth*. Pl. 6. f. 4.

Stamen, or Chive; open the bloſsom of a *Tulip* or a *Lily*, and you will see six long threads or filaments, placed round the central pillar, with an Anther on the top of each. One of these filaments, together with its Anther, is called a Stamen. Pl. 3. f. 2. (*b. b. b. b. b. b.*) f. 3. (*h. i.*) f. 6.

Stameniferous Flowers, or Florets, such as contain one or more Stamens, but no Pistils. These are neceſsarily barren.

Standard (vexillum) the upright petal of a butterfly-shaped bloſsom, very remarkable in the *Pea*. See the introduction to the Claſs Diadelphia. See also pl. 4. f. 12. (*b.*) f. 14. (*b.*) f. 15.

Starry (stellatus) plants whose leaves grow in whirls round the stem; as the *Goosegraſs*, *Cheese-rennet*, and several other plants in the fourth claſs. Pl. 9. f. 3. (*b. b.*)

Stellatæ, starry, or star-like.

Stem (caulis) the proper trunk of a plant supporting the leaves, branches, and flowers. It rises immediately from the root.

Stem (stipes) formerly called the pillar, which supports the pileus of some of the Fungi. Pl. 1. f. 11. (*b.*)

Stem-clasping (amplexicaulis) see embracing the Stem.

Stem-Leaves (caulina) such as grow immediately upon the stem, without the intervention of branches.

Stem-less (acaulis) without a stem.

Sterilis, barren.

Stiff, see rigid.

Stigma, summit.

Stimuli, stings.

Stings (stimuli) sharp-pointed substances conveying poison into the part they penetrate. Few people are ignorant of the sting of a *Nettle*.

Stipes, a pillar, or pedicle. Also the stem of some kind of *Fungi*.

Stipitatus, standing on a pillar, or pedicle.

Stipulæ, a sort of props; small leaves or scales situated on each side the base of a leaf-stalk or fruit-stalk, for the purpose of supporting them at their first appearance. They are sufficiently evident in the *Garden Pea*. Pl. 10. f. 6. (*b. b.*)

Stolo, a sucker.

Stoloniferus, putting forth suckers.

Stone; see Nut.

Straddling (divaricatus) branches standing wide from each other.

Straight (rectus) not bending.

Strap-shaped (linearis) long and narrow like a strap or a fillet; as the leaves of *Thrift*, *Crocus*, and *Rosemary*. Pl. 7. f. 7. when the same shape is expreſsed as existing in a floret of a compound flower. Linnæus uses the term *ligulatus*. Pl. 4. f. 21.

Strap-spear-shaped (lineari-lanceolatum) see Spear-egg-shaped.

Straw (culmus) a kind of trunk proper to *Graſses*. Pl. 10. f. 3.

Streaked, marked with depreſsed, but not always parallel lines.

Striatus, scored.

Strictus, stiff and straight.

Strigæ, strong spear-shaped bristles, or thorns.

Strigosum, furnished with Strigæ.

Strings (nervi) see fibres; as in the broad and narrow-leaved *Plantain*. Pl. 7. f. 46.

Strobilus, a cone.

Strobiliformis (spica) a spike like a cone.

Style, or Shaft, is a part of a Pistil standing upon the germen, and supporting the summit. See Pistil. Pl. 3, f. 2. (*c.*) f. 5. (*d.*) f. 7. (*k.*)

Sub, is prefixed to many of the Linnæan terms, and signifies that the term is not precisely and exactly applicable in its strictly defined sense, to the subject spoken of, but that it must be understood with some latitude. Thus *sub-seſsilis,* signifies nearly sitting; *sub-rotundus,* roundish, or nearly round; *sub-ovatus,* nearly egg-shaped, &c.

This modification of meanings occasions much difficulty to the learner, and its inaccuracy is a reproach upon the science. It is much to be wished, that Botanists would avoid it as far as may be, which a little attention would often enable them to do.

Subdivisus, subdivided.

Submersus, under the surface of the water.

Subramosus, a little branched.

Subrotundus, nearly globular.

Subulatus, awl-shaped.

Succulentum, succulent, juicy.

Suckers (stolones) shoots which rise from the root, spread along the ground, and then take root themselves; as in the *Sweet Violet.*

Suffruticosus, somewhat woody, nearly shrubby. *Sage* and *Lavender* are examples.

Sulcatus, furrowed.

Summit (stigma) the upper part of a Pistil. See Pistil. See also pl. 3. f. 2. (*f.*) f. 5. (*e.*) f. 7. (*l.*)

Superficies, the surface.

Superflua, superfluous; see Polygamia superflua, in the introduction to the Claſs Syngenesia.

Superior (superus) Cup or Blossom; when the cup or bloſsom is situated above the Germen, it is said to be superior; as in the *Honeysuckle*, *Currant*, and *Campanula.*

Superus, superior, above.

Supinus, the upper surface.

Supra-decompositus, more than doubly compound.

Supra-foliaceus, placed above the leaf.

Surculus, a shoot; the branch of a *Moſs.*

Sutura, seam.

Sword-shaped (ensiforme) as the leaves of the *Iris,* or *Flower de Luce.*

Syngenesia, united Anthers; the name of a Claſs; which see.

Tail (cauda) a sort of slender pointed appendage to some seeds.

Taper (acuminatum) Leaf, gradually tapering to a point. Pl. 7. f. 41.

——— (attenuatus) a fruit-stalk, growing slender.

Target (pelta) a kind of fructification, on the leaves of some of the *Lichens,* which is circular and a little convex. See Saucer.

Target-shaped (peltatum) applied to a leaf having its leaf-stalk fixed, not at the edge, but nearly in its centre; as in *Water Lily*. Pl. 9. f. 4. (*a*.)

——— **Summit**, one that is circular and flat.

Tendril (cirrus) a spiral shoot or string, by means of which some plants support themselves against adjacent bodies. It is well known in the *Vine* and *Pea*. Pl. 10. f. 6. Pl. 8. f. 58.

Tenuis, thin, slender.

Teres, columnar.

Teretiusculus, roundish.

Tergeminum (leaf) doubly-twinfork.

Terminalis, terminating.

Terminating (terminalis) (opposed to lateral) standing at the end of the stem or branches; as the fruit-stalks of *Borrage*, the bloſsoms of *Groundsel*.

Ternatis (leaves) growing three together from the same point. Pl. 7. f. 47. and 51.

Ternis, by threes; three in a place.

Tesselatum, chequered.

Tetradynamia, four Stamens longer; the title of one of the Claſses; which see.

Tetragonus, 4-cornered.

Tetragynia, 4 Pistils; a circumstance which gives title to an Order in several of the Claſses.

Tetrandria, 4 Stamens; the title of the fourth Claſs; which see.

Tetra-petala, 4-petaled.

Tetra-phyllus, 4-leaved.

Tetra-sperma, 4-seeded.

Thalamus, the same as Receptacle; which see.

Thorn (spina) a sharp-pointed projection growing from the woody substance of a plant; as in *Gorze* and *Blackthorn*. Pl. 10. f. 1.

Thread, see Filament.

Thread-shaped (filiformis) of the same thickneſs from top to bottom, like a piece of packthread. Take for example the leaves of *Fennel*, or the style of the *Crocus*, or *Honeysucle*.

Three-edged (trigonus) or three-cornered; a stem having three corners or angles, and the sides not flat.

Three-fibred (trinervatus) having three veins or nerves running from the base to the end of a leaf, without branching off.

Three-lobed (trilobatum) Pl. 7. f. 17.

Thronging (confluentia) aſsembled in close parcels, with intervening naked places.

Thyrsus, cluster.

Tiled (imbricatus) one leaf or scale partly covering another, like the tiles on a house, e. g. the cup of *Dandelion*, or of *Burdock*. Pl. 4. f. 25. (a.) and Pl. 9. f. 2.

Tip, see Anther.

Tomentosus, cottony.

Tomentum, cotton.

Tongue-shaped (lingulatum) applied to expreſs a thick fleshy leaf, somewhat in the shape of a tongue.

Toothed (dentatus) when the edges of a leaf are set with little teeth, at some distance from each other, not pointing towards the end, as in the serrated leaves, nor towards the base, as in the inversely serrated leaves. *Common Eyebright*, *Primrose*, *Cowslips*, and *Mountain Willowherb*, have toothed leaves. Pl. 7. f. 30.

Tooth-serrated (dentato-serratum) when the edge of a leaf is set with teeth, and these teeth are serrated.

Top-shaped, (turbinatus) nearly conical; some *Pears* are of this form.

Torosus, protuberating.

Torulosus, a little swelling out.

Tortilis, twisted.

Trailing (procumbens) **Stems**; lying along upon the ground, and not sending out roots. e. g. *Common Speedwell*, *Red Pimpernel*, *Small Sea Bindweed.*

Transversum, placed acroſs, or croſswise, as when the partition of a seed-veſsel is not placed in the same direction or plane with the valves, but perpendicular to them.

Trapeziforme, the shape of a flat leaf having 4 unequal sides.

Trebly-compound. See **Triply-compound.**

Triandria, three Stamens; the name of the third Claſs.

Triangular (triangularis) expreſsing the form of a leaf, stem, or stalk, with three sides, and three angles, or corners. Pl. 7. f. 12.

Triangular-spear-shaped (deltoideus) leaves in this form are broad at the base, and nearly triangular, but spear-shaped at the point. e. g. *Black Poplar.* Pl. 7. f. 45. The term *deltoideum*, applied to thick fleshy leaves, bears a different meaning, but no such leaf occurs amongst the British plants.

Trichotomus, dividing by threes.

Tricocca, 3-celled, and 3-seeded, swelling out.

Tricuspidatus, 3-pointed.

Trifidus, 3-clefted.

Trigonus, 3-cornered.

Trigynia, 3 Pistils; giving name to an Order in several of the Claſses.

Trilobatum, 3-lobed.

Triloculare, 3-celled.

Trinerve, 3-fibred.

Tripartitus, with 3 divisions.

Triple-thorn (triplex) Pl. 10. f. 1. (*b. b. b.*)

Triphyllus, 3-leaved.

Tripinnatum, triply-winged.

Triply-compound Leaves (folia supra-decomposita) are of three kinds, viz.

1. **Double-twinfork** (tergeminus) leaf-stalk, with two leafits at the end of each, and two more at the division of the fork. Pl. 8. f. 57.
2. **Triply-threefold** (triternatus, triplicato-ternatus.) Pl. 8. f. 59. the divisions of a triple leaf-stalk again subdivided into *threes*, and three leafits at the end of each subdivision.
3. **Triply-winged** (tripinnatus; triplicato pinnatus) when the lateral ribs of a doubly winged leaf have themselves other leaf-stalks with winged leaves. Pl. 8. f. 60. 61.

Triqueter, with 3 flat sides, as the stem of the *Pansie.*

Trisperma, 3-seeded.

Triternatum, triply-threefold.

Trivalve, 3-valved.

Trivial Name, a name added to the Generic name, for the more ready discrimination of species of the same Genus.

Trowel-shaped, or **Triangularly-spear-shaped** (deltoideus) which see.

Truncatum, lopped.

Truncus, trunk.

Trunk (truncus) the main body of a plant; it is either a **Stem**, a **Stalk**, or a **Straw**. See those terms.

Tube (**tubus**) the lower part of a bloſsom of one petal is frequently lengthened out into a tube, as in *Crocus,* and *Polyanthus.* Pl. 4. f. 1. (*a.*) f. 7. (*a.*)

Tubercle (tuberculus) a little solid pimple.

Tuberculati, tubercled. A name given to the plants of one division of the Genus *Lichens*, on account of their bearing solid warts or tubercles.

Tubulatus, } tubular.
Tubulosus, }

Tubus, tube.

Tuberous (tuberosus) **Root**; consisting of many roundish knobs collected into a bundle, as the root of *Pæony* and *Dropwort.* Pl. 11. f. 7.

Tubular (tubulosus) in the shape of a hollow tube, as the cup of *Privet*, the bloſsom of the *Honeysuckle*, or the nectary of the *Hellebore.*

——— **Florets**, in compound flowers of the Syngenesia Claſs are shaped like a hollow tube, and the top of each floret is cloven into 5 segments. In the *Tansie* all the florets are tubular, but, in the *Sunflower* and the *Daisie*, only those in the centre. Pl. 4. f. 26.

Tuft (cyma) a composition of flowers in which a number of fruit-stalks proceeding from one common centre, rise to the same height; and these again shoot out other little fruit-stalks, which do not proceed from one central point.

The *Elder*, the *Gelder Rose*, and the *Laurustinus*, are instances. Pl. 6. f. 10.

Tunicatus, coated.

Turbinatus, top-shaped; nearly conical.

Turgidus, swollen, turgid.

Turio, a young unexpanded shoot, as is the *Asparagus* in the state it is gathered for eating.

Twining (volubilis) twisting round other bodies, and ascending in a spiral line. Some plants twine from the left to the right, thus, ☾ in the direction of the sun's apparent motion, when the spectator faces the South, as *Hop*, *Honeysuckle*, and *Black Briony*. Others twine from the right to the left, thus ☽ contrary to the sun's apparent motion, as *Bindweed* and *Scarlet Kidney Bean*. Pl. 10. f. 5.

Twin-fork (bigeminus) see **Doubly Compound Leaves.**

Two-edged (anceps) as the stem of *Tutsan*, and the *Sweet-smelling Solomon's Seal.*

Two-rowed (distichus) like the teeth in a double box, or ivory comb. The leaves of the common *Fir*, and the flowers of *Sweet Cyperus*, are examples.

Umbel (umbella) a composition of flowers in which a number of slender fruit-stalks proceed from the same centre, and rise nearly to the same height, so as to form a regular surface at the top. *Hemlock*, *Carrot*, and *Cow-parsnep*, are examples. These are said to be *umbelliferous* plants. Pl. 6. f. 9.

Umbellule (umbellula) a little Umbel. The fruit-stalks or spokes which compose an umbel are often divided at the top into several smaller fruit-stalks, and these smaller sets of flowers are called *Umbellules: Hemlock*, *Carrot*, and *Angelica*, furnish instances. The fruit-stalks of an Umbel are called *Spokes*. Pl. 6. f. 9. (*b. b. b. b.*) Those of an Umbellule, *Spokets*, or little *Spokes*.

Umbilicatus, resembling a navel; dimpled.

Un-angulatus, one-edged.

Unarmed (inermis) without weapons of defence. See **Weapons.**

Uncinatus, hooked at the end.

Undatus, waved.

Under-shrub (suffrutex) like a shrub in its woody texture at the bottom, but the top shoots herbaceous, tender and dying in the winter. *Lavendar* is an example.

Undivided, see simple.

Unequal florets (radiati) when an Umbel is not composed of equal florets, but those in the circumference are larger than those in the centre, and the outer petals are larger and different in shape from the inner petals. As in the *Carrot* and *Cow-parsnep*. See **Radiate**, for Linnæus uses the same term (radiatus) to expreſs the diſsimilarities of the florets in the umbelliferous plants of the Claſs Pentandria, as well as those of the compound flowers of the Claſs Syngenesia.

Unguis, a nail, see Measure. Also the claw of a Petal; see Claw.

Ungulatus, hoof-shaped.

Unicus, single; only one.

Uniflorus, one-flowered.

Uniform (equalis) a term applied to compound flowers when the florets which compose them are all alike; as those of *Fennel, Lettuce*, and *Burdock*.

Unilateralis, growing from one side only.

Uniloculare, 1-celled.

Univalve, 1-valved.

Universalis, general.

United (connatus) **Leaves**, two opposite leaves growing together at the base. Pl. 9. f. 4. (*h. h.*)

Upright (erectus) standing upright, or nearly so, as the cups of *Periwinkle*; the anthers of *Polyanthus*; the stalks of *Tulips*; the stems of *Sparagus*. It is also applied to leaves. Pl. 9. f. 5. (*b. b.*)

Urceolatus, pitcher-shaped.

Urens, stinging.

Utriculus, a little bag or hollow vesicle.

Vagina, a sheath formed by a part of a leaf, distinct from the Sheath (Spatha) which is a species of Calyx. It is very frequent in the *Graſses*.

Vaginans, sheathing.

Vaginatus, sheathed.

Valve (valvula) the different pieces that compose a capsule are called valves. Thus in the *Thornapple* there are four valves. Pl. 5. f. 14. (*c. c. c. c.*) In the *Looseſtrife* ten, in *Jacob's Ladder, Daffodil*, and *Hyacinth* three. Pl. 5. f. 6. f. 12. (*a. a.*)

—— The Petals and Calyxes which constitute the flowers of Graſses, are called valves; thus in the *Common Meadow Graſs* the cup is a dry chaffy husk, composed of two valves, and the bloſsom is formed of two other valves. See pl. 2. f. 1. (*a. a.*) (*b. b.*) and most of the other figures in that plate.

—— The mouth of the tube of a bloſsom is frequently closed by several projecting substances; thus in the bloſsoms of *Borrage* and *Jacob's Ladder*, the tube is closed by five of these substances, and these also are called valves.

Vane-like (versatilis) turning about like a vane, or weathercock, as is the case with the Anthers of *Geranium* and *Crown Imperial*.

Variety (varietas) is applied to such individual plants as differ in some circumstances from others of the same species, but not differing so eſsentially or so permanently as to induce us to reckon them as distinct species.

Vaulted (fornicatus) like the roof of one's mouth. The upper lip of many of the gaping bloſsoms is vaulted; e. g. *Red* and *White Deadnettle.*

Veil (calyptra) the Calyx of *Moſses*, covering the Capsules. It is generally in a conical form, like an extinguisher.— Pl. 1. f. D. (*a.*)

Veined (venosum) a leaf is said to be veined when its fibres are branched, as in Pl. 7. f. 44.

Venosum (leaf) veined.

Ventricosus, distended; bellying.

Verrucosus, warty.

Versatilis, vane-like.

Verticillati, growing in whirls.

Verticilli, whirls.

Vesiculæ, bladders.

Vexillum, standard.

Villi, soft hairs.

Villosus, soft haired.

Vimen, a slender and flexible twig.

Virgatus, rod-shaped.

Viscid, or clammy, (viscidus.)

Viscositas, clammineſs.

Viviparous (viviparus) a term applied to stems or stalks producing bulbs that are capable of vegetation. In *Toothwort* and *Star of Bethlem*, these bulbs are found at the base of the leaves; in *small Bistort*, on the lower part of the spike; in some species of *Garlic* at the origin of the Umbel of flowers; and upon the spikes of some of the Graſses, as the *Cat's-tail Canary*. It is also used where the Seeds falling upon some part of the parent Plant, germinate and produce a young plant.

Volubilis, twining.

Volva, Curtain. It is used also by some Authors, but not by Linnæus, to signify the Wrapper.

Warty (verrucosus) having little hard lumps or warts upon the surface.

Waved (undatus) when the surface of a leaf towards the edge does not lie flat, but appears waved, and full, like a man's ruffle. The leaf of the *Water Caltrops* is an example. Pl. 8. f. 66.

Weapons (arma) are either Prickles, Thorns, or Stings. Pl. 10. See those terms.

Wedge-shaped (cuneiformis) as the leaves of the *Garden Spurge*, and the *Garden Purslain*. Pl. 8. f. 65.

Wheel-shaped (rotatus) a term used to expreſs a bloſsom of one petal, with a flat border and a very short tube. *Borrage* and *Speedwell* are familiar examples. Pl. 4. f. 6.

Whirls (verticilli) of Branches, Leaves, or Flowers.— The branches of the *Fir*, the leaves of *Ladies Bed-straw*, and the flowers of the *Deadnettle*, grow in whirls round their respective stems. They somewhat resemble the spokes round the nave of a wheel. Pl. 6. f. 11.

Wings (alæ) the lateral petals of a butterfly-shaped bloſsom; e. g. in the *Pea*. See the Introduction to the Claſs Diadelphia. See also pl. 4. f. 13. (c. c.) and f. 16.

Winged (alatus) Leaf-stalk, flattish, with a thin membrane or leafy border on each side.

Winged (pinnatus) Leaf; when an undivided leaf-stalk hath many little leaves growing from each side, as in *Jacob's Ladder*, *Bladder Sena*, *Ash*, and *Pea*. Pl. 8. f. 52. 53. 54, &c.—The reader is desired particularly to study this plate with its annexed explanation, in order to obtain good ideas of the different kinds of winged leaves.

Winged (alatus) Stem, or Leafstalk, such as have a thin flat membrane on each side, as the leafstalk of the *Orange*.

Wing-cleft (pinnatifidus) is applied to a leaf that is cut and divided so deeply on each side, down towards the middle rib, as almost to resemble a winged leaf. The *Corn Poppy* and the *Polypody* are examples; and so are the root-leaves of the *Shepherd's Purse*. Pl. 7. f. 23.

Winged shoots (surculi pinnati) when the shoots strike out from the sides, like the plumage along the sides of a quill. Instances will be found in several species of the *Feather-moſs*, or *Hypnum*.

Wires (flagelli) see Runners.

Woody (arboreus) opposed to herbaceous. The main stems of the *Wallflower* or *Gillyflower* are woody.

Wool (lana) a kind of curly haired cloathing upon the surface of some plants. The leaves of *Horehound*, *Great Mullein* and *Gorze* are woolly.

Woolly (lanatus.)

Wrapper (volva) but not the volva of Linnæus; a tough membrane which invelopes the whole plant of some of the *Fungu*ſ*ses* in its younger state. See the Introduction to the Claſs Cryptogamia; see also pl. 19. fig. F. *m. m. m. m. m.*

Wrinkled (rugosus) as are the leaves of *Sage*, *Primrose*, *Wood Strawberry*, and *Hasel*,

Zigzag (flexuosus) having many contrary turnings and bendings, as the stems of *Rough Bindweed* and *Woody Nightshade*, or the branches of *Golden Rod*.

EXPLANATION OF THE PLATES.

PLATE III.

Parts composing a Flower.

Fig. 1. A Back View of a Rose, to shew the Calyx or Cup,
a. a. a. a. a. the Segments of the Cup.

Fig. 2. A figure of the Crown Imperial, to shew
a. a. a. a. a. a. the Petals.
b. b. b. b. b. b. the Stamens.
c. c. c. c. c. c. the Anthers.
d. c. f. the Pistil.
d. the Germen.
e. the Style.
f. the Summit.

Fig. 3. *g.* a Petal of the Crown Imperial separated from the Flower.
h. i. a Stamen; *h.* the Filament; *i.* the Anther.
k. a nectariferous Pore.

Fig. 4. The Seed-veſsel of the Crown Imperial cut a-croſs, to shew the three Cells. During the existence of the Bloſsom this was called the Germen.

Fig. 5. A Flower, with the Cup, the Stamens, and the Pistils; but the *Petals* taken away.
a. the Calyx, in this case called a Cup.
b. b. b. b. b. b. the Anthers of the Stamens.
c. the Germen.
d. the Style.
e. the Summit.
f. one of the Anthers discharging its pollen.

Fig. 6. *g. h.* a Stamen taken out of a Flower.
g. the Filament; *h.* the Anther; which, in this instance, is double.

Fig. 7. *i. k. l.* a Pistil taken out of a Flower; *i.* the Germen; *k.* the Style; *l.* the Summit.

Fig. 8. *a.* a particle of Pollen greatly magnified; *b.* the vapour escaping from it, which is supposed to paſs through the Style, to fertilize the Germen.

Fig. 9. A Daffodil and its sheathing Calyx; *a.a.* the Sheath; *d.* the sheathed fruit-stalk.

Fig. 10. A Cup which is the Calyx of a Polyanthus, with five sharp teeth in the rim.

PLATE IV.

BLOSSOMS.

Fig. 1. A Bloſsom of one Petal; salver-shaped.
a. the Tube; *b. b.* the Border.

Fig. 2. A bell-shaped Bloſsom.

Plate III.

1
a
a
a
a
a
a
10
8
b
a
9
a
a
d
2
f
a
c
c
a
b
c
b
a
d
c
b
a
c
b
b
b
a
c
c
a
4
5
b
c
b
b
b
b
d
b
l
c
a
6
b'
g
l
k
i
7
g
3
i
h
k

Plate IV

1
b
b
a
2
3
4
5
6
7
b
a
c
10
a
c
c
b
c
8
a
b
c
9
a
d
d
b
c
11
b
b
b
b
a
a
c
12
13
b
a
15
c
17
18
i
h
a
14
b
c
c
a
d
16
m
24
a
a
a
a
b
20
d
d
c
c
19
25
c
c
a
26
d
c
21
e
h
g
22
l
i
k
23
a
b
27
h
d
b

Fig. 3. A tubular bell-shaped Bloſsom.

Fig. 4. A Bloſsom bell-shaped, but distended, or bellying.

Fig. 5. A Bloſsom with six reflected Segments.

Fig. 6. A back view of a wheel-shaped Bloſsom, to shew the ſhortneſs of the tube.

Fig. 7. A funnel-shaped Bloſsom; *a.* the Tube; *b.* the Border; c. the Cup.

Fig. 8. 9. Gaping Bloſsoms.
a. a. the Upper Lip.
b. b. the Lower Lip.
c. c. the Tube.
d. d. the Mouth.

Fig. 10. A gaping Bloſsom; *a.* the Upper Lip; *b.* the Lower Lip; *c.* the Palate.

Fig. 11. A croſs-shaped Bloſsom, with the Cup taken away, to shew *a. a.* the Claws of the Petals; *b. b. b. b.* the Limbs of the Petals; c. the Receptacle.

Fig. 12. A croſs-shaped Bloſsom, with the Calyx or Cup; *a. a. a. a.* the Petals; *b.* the Cup, hunched at the base.

Fig. 13. 14. Two views of butterfly-shaped bloſsoms; *a. a.* the Cups; *b. b.* the Standards; *c. c.* the Wings. *d.* the Keel.

Fig. 15. The Standard of a butterfly-shaped Bloſsom separated from the other Petals; *c.* the Claw.

Fig. 16. One of the Wings of a butterfly-shaped bloſsom separated from the other Petals; *m.* the Claw.

Fig. 17. The Keel, or lower-most Petal of a butterfly-shaped Bloſsom separated from the other Petals.

Fig. 18. The Cup, Stamens, and Pistil, of a butterfly-shaped Bloſsom, after the Petals are taken away; *a.* the Cup; *h.* the Stamens; *i.* the Pistil.

COMPOUND FLOWERS.

Fig. 19. A Flower of Dandelion, as an example of a compound Flower, in which all the Florets are strap-shaped.

Fig. 20. The common Calyx, or Cup, of a compound Flower, composed of upright Scales, *d. d.* and reflected Scales, *c. c.*

Fig. 21. A strap-shaped Floret taken out of a compound Flower; *e.* the Bloſsom; *f.* the Germen; *g.* the Anthers forming a hollow cylinder, through which paſses the Pistil, with the two reflected Summits, *h.*

Fig. 22. *k.* the Seed of a compound Flower; *i.* the Pillar supporting the feathered Down, *l.*

Fig. 23. A naked, dotted receptacle of a compound Flower; *a.* the Receptacle; *b.* the Calyx reflected.

Fig. 24. The Flower of a Daisie, as an example of a *Radiate* compound Flower; *a. a. a. a.* the strap-shaped Florets in the Circumference; *b.* the tubular Florets in the Centre.

Fig. 25. The Flower of **Burdock**, as an example of a compound Flower in which all the Florets are tubular; *a.* the scaly tiled Calyx; *b.* one of the Scales with its hooked point; *c. c.* the tubular Florets.

Fig. 26. One of the tubular Florets separated from the rest; *d.* the Bloſsom; *c.* the Germen; *f.* the Pistil.

Fig. 27. One of the Seeds; *d.* the pyramidal seed, crowned by the short down, *h.*

PLATE V.

NECTARIES.

Fig. 1. The Bloſsom of a **Daffodil**, with the bell-shaped Nectary.

Fig. 2. The Bloſsom of the **Parnassia** to shew the Nectaries; *a. a. a. a. a.* which are little Globes supported upon Pillars.

Fig. 3. *a. a.* The horned Nectaries of the **Wolfsbane**; *b. b.* the foot-stalks which support them.

Fig. 4. *a.* The horn-shaped Nectary of the **Larkspur**; *b. c. d. e. f.* the Petals.

SEED-VESSELS.

Fig. 5. *c. c.* The globular Capsule of a **Poppy**; *a. a.* the holes through which the Seeds escape; *b.* the radiated summit.

Fig. 6. A Capsule with three Valves, opening at the top; *a. a. a.* the Valves.

Fig. 7. A Capsule cut open lengthwise, to shew the Receptacle, with the Seeds fixed to it.

Fig. 8. A Capsule opening by holes at the sides; *a. a.* holes through which the Seeds escape.

Fig. 9. A Capsule which opens like a snuff-box, or as if it was cut round; *a.* the Capsule entire; *b.* the Capsule open; *c.* the Receptacle, as it appears after the Seeds are removed.

Fig. 10. An inversely heart-shaped Pouch, or short Pod, notched at the end.

Fig. 11. A circular Pouch, or short Pod, notched at the end.

Fig. 12. A Pouch, or short Pod, opened a little to shew *a. a.* the Valves; *b. b.* the Partition between the Valves.

Fig. 13. A Capsule with two boat-shaped Valves, and one Cell; *a. a.* the Valves opening lengthwise.

Fig. 14. A Capsule cut open horizontally to shew *c. c. c. c.* the Valves; *b. b. b. b.* the Partitions: *d.* the Column in the centre, to which the Partitions are connected; *a. a. a. a.* the Receptacles and Seeds.

Fig. 15. Seeds of Geranium, with a long Bill or Beak; *b.* the Seeds; *a.* the Beak.

Plate V.

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Plate VI.

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Fig. 16. A Legumen, or Seed-veſsel, of two Valves, in which the Seeds are fixed to the upper Seam only; *a. b.* the Valves.

Fig. 17. A Pod, or Long-pod, a Seed-veſsel of two Valves, in which the Seeds are fixed to the two Seams alternately. *a. b.* the Valves; *d. d. d. d. c. c. c.* the Seeds.

Fig. 18. A Cone, cut through lengthwise, to shew the Scales, and the Seeds.

Fig. 19. A Berry cut acroſs to shew *a. a.* the Seeds; *b. b.* the Pulp; *c. c.* the Coat.

Fig. 20. A fleshy Capsule, or Pomum, cut acroſs to shew *b. b. b. b. b.* the five Cells.

Fig. 21. A Drupa, or pulpy Seed-veſsel cut acroſs; *a. a.* the pulpy part; *b. b.* the Nut or Stone.

PLATE VI.

SEEDS.

Fig. 1. The Seed-vessel of the Spindle-tree, to shew the Seed-coat; *a. a.* the Valves of the Capsule; *b.* a Seed; *c. c.* the Seed-coat opened to shew the Seed.

Fig. 2. A Seed with its Down.
a. hair-like Down; *b.* feathered Down.
d. the Pillar or Pedicle, supporting the Down; *c.* the Seed.

Fig. 3. The Seed of a Bean split in two, after being soaked a little while in water, to shew
a. a. the Seed-lobes.
b. the Heart.
c. the descending part of the Heart.
d. the ascending part of the Heart.
e. the Eye.

FRUIT-STALKS.

Fig. 4. A Stalk. It supports the Flowers, and springs directly from the Root.

Fig. 5. A Spike; *a. b. c. d.* the Spikets, Spiculæ, or little Spikes.

Fig. 6. A Panicle.

Fig. 7. A Corymbus; *a. a. a. a. a. a.* the little Fruit-stalks.

Fig. 8. A Bunch.

Fig. 9. An Umbel; *b. b. b. b.* Umbellules; *c. c.* the General Involucrum; *d. d. d. d.* the Involucellum; *e. e. e. e.* the Spokes of the Umbel.

Fig. 10. A Tuft.

Fig. 11. Whirls of Flowers; *a. a. a.* the Whirl.

Fig. 12. A Catkin.

PLATE VII.

LEAVES.

Fig.
1 Round.
2 Circular.
3 Egg-shaped.
4 Oval.
5 Oblong.
6 Spear-shaped.
7 Strap-shaped.
8 Awl-shaped.
9 Kidney-shaped.
10 Heart-shaped.
11 Crescent-shaped.
12 Triangular.
13 Arrow-shaped.
14 Heart-arrow-shaped.
15 Halberd-shaped.
16 Notched at the end.
17 Three-lobed.
18 Bitten.
19 Gashed.
20 Five-cornered.
21 Gnawed.
22 Hand-shaped.
23 Winged Clefts.
24 Jagged.
25 Indented.
26 Indented and toothed.

Fig.
27 Barbed.
28 Divided.
29 Serpentine (at the edge.)
30 Toothed.
31 Serrated.
32 Doubly serrated.
33 Doubly scolloped.
34 Sharply scolloped.
35 Bluntly scolloped.
36 Sharply notched at the end.
37 Plaited.
38 Scolloped.
39 Blunt.
40 Acute.
41 Tapering to a point.
42 Blunt, but ending in a point.
43 Fringed.
44 Veined.
45 Triangularly spear-shaped.
46 Fibrous.
47 Growing by threes upon leaf-stalks.
48 Finger-like.
49 Bird-footed.
50 In pairs.
51 By threes.

PLATE VIII.

LEAVES.

Fig.
52 Winged, with an odd leafit at the end.
53 Abruptly winged.
54 Winged, with the leafits alternate.
55 Interruptedly winged.
56 Doubly winged.
57 Doubly three-fold.
58 Winged, and terminated by a tendril.
59 Triply three-fold.
60 Triply winged, without an odd leafit at the end.

Fig.
61 Triply winged, with an odd leafit at the end.
62 Lyre-shaped.
63 Lopped at the end.
64 Battledore-shaped.
65 Wedge-shaped.
66 Waved at the edge.
67 Curled.
68 Cylindrical.
69 Inversely heart-shaped.

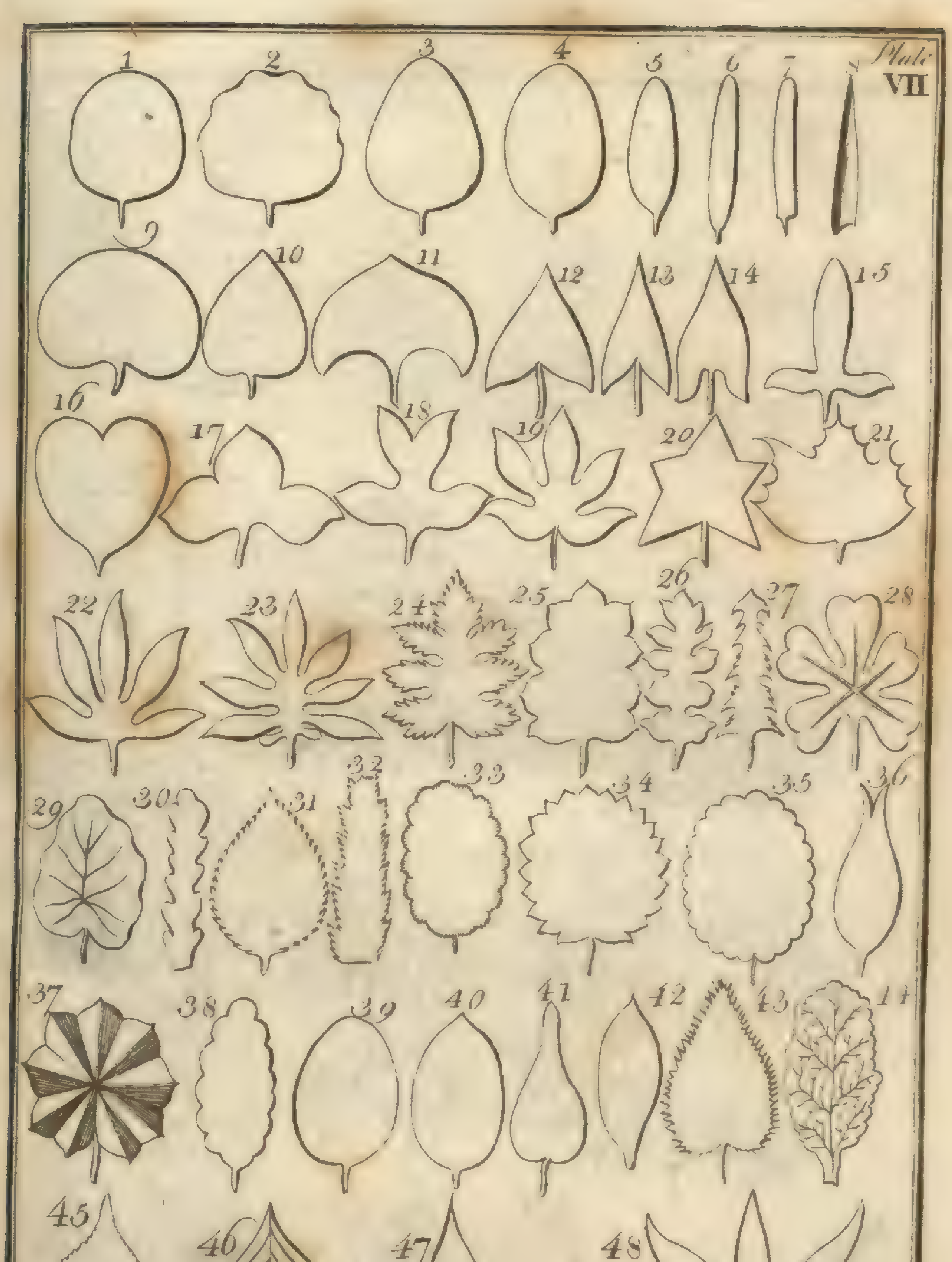
Plate VII
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Plate VIII

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Plate **IX**

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Plate X

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PLATE IX.

DISPOSITION and DIRECTION of LEAVES.

Fig. 1. Leaves in croſs pairs.
Fig. 2. Tiled Leaves.
Fig. 3. *a.* A jointed Leaf.
b. b. Starry Leaves.
c. c. Leaves growing by fours.
d. d. d. d. d. Leaves alternate. In fig. 5. all the Leaves are opposite.
e. Chaffy Leaves.
f. Leaves in a bundle.
Fig. 4. *a.* A Target-shaped Leaf.
b. A Leaf with its Leaf-stalk, *c.*
d. A sitting Leaf.
e. A decurrent Leaf.
f. A Leaf embracing the Stem.
g. A perforated Leaf.
h. h. United Leaves.
i. A sheathing Leaf.
Fig. 5. *a. a.* Leaves bent inwards.
b. b. Upright Leaves.
c. c. Expanding Leaves.
d. d. Horizontal Leaves.
e. e. Reclining Leaves.
f. f. Rolled back Leaves.
m. An Axillary Fruit-stalk.
Fig. 6. Leaves preſsed to (the Stem.)
Fig. 7. Root-leaves; *a.* the Root; *b. b. b.* the Leaves rising immediately out of it, without the intervention of any Stem.
Fig. 8. *a. a.* Floral Leaves; different from *b. b.* the other Leaves of the plant; *c.* a Fruit-stalk.

PLATE X.

WEAPONS.

Fig. 1. *a. a. a. a.* Simple Thorns.
b. b. b. A triple Thorn.
Fig. 2. *a. a.* Simple Prickles.
b. b. Forked or triple prickles.

STEMS, &c.

Fig. 3. A jointed Straw. (*a. a. a.*) The Joints.
Fig. 4. A forked Stem.
Fig. 5. A twining Stem.
Fig. 6. *a. a.* A Tendril.
b. b. Stipulæ.
c. c. Concave Glands.
Fig. 7. A creeping Root.
Fig. 8. A creeping Stem.

PLATE XI.

Fig. 1. *a. a. a. a.* Glands supported upon Foot-stalks.

ROOTS.

- Fig. 2. A coated bulbous Root, cut a-croſs, to shew the Coats which compose it.
- Fig. 3. A solid bulbous Root.
- Fig. 4. A scaly bulbous Root.
- Fig. 5. A branching Root.
- Fig. 6. A Spindle, or Carrot-shaped Root.
- Fig. 7. A tuberous Root.

PLATE XII.

BOTANICAL MICROSCOPE.

- Fig. 1. Represents the Botanical Microscope in its present improved state.
- Fig. 2. Is a Magnifying Glaſs, to be held in the hand, and applied close to the eye, whilst the object to be examined is brought immediately under it, at such a distance as shall be found to give the most distinct vision.
- Fig. 3. Shews the Diſsecting Knife, the Triangular Needle, and a pair of small steel Plyers. These instruments are useful in the diſsection of flowers, even when the plants are so large as not to require magnifying.

When the parts in question are very minute, and require a nice and careful diſsection, place the microscope upon a table, and raise it, if neceſsary, on a book or two, so that the eye may be applied with ease immediately over and close to the glaſs (*b.*) Lay the object to be examined on the dark stage (*a.*) and turn the screw at (*c.*) until you see the object upon the stage perfectly distinct. With the needle in the left, and the knife in the right hand, the elbows resting on the table, proceed in the diſsection at the same time that the eye is applied to the glaſs. (*b.*)

When the microscope is shut up, the instruments and the hand-glaſs are to be put into the cells destined to receive them, and the whole forms a shape and size convenient to carry in the pocket.

This Microscope may be had of the publishers of the book.

Plate XI

Gentiana Collina.

PL. XII.

Fig. 2.

Fig. 1.
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c

Orchis.
Ophrys.
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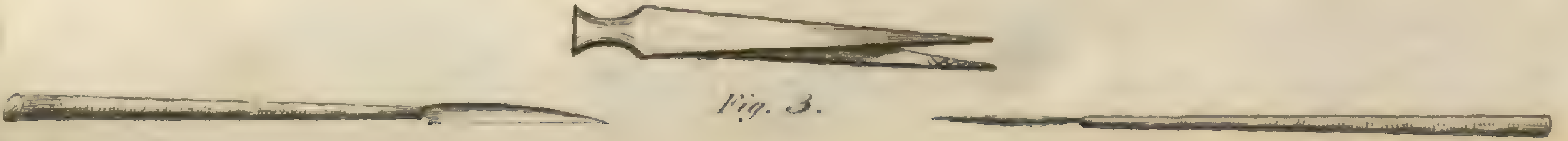
Fig. 3.

A

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Bast. Basteri opuscula subseciva. 4to. Tom. I. 1762.—II. 1765.

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Blair's botanic eſsays. 8vo. London. 1720.

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Gent. Mag. Gentleman's Magazine, from 1731 to 1800. 8vo.

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Leers flora Herbonensis exhibens plantas circa Herbonam Naſsoviorum crescentes. 1775. 8vo.

Leys. Leyseri flora Halensis. 8vo. ed. ult. 1783.

Lightf. Flora Scotica, or a systematic arrangement of the native plants of Scotland and the Hebrides, by the Rev. John Lightfoot, A. M. 2 vols. 1777. 8vo.

Linn. Linnæus's works.

Linn. amæn acad.—fl. lapp.—fl. suec.—gen. pl.—hort. ups.—mant. pl.—mat. med—sp. pl.—syst. nat.—syst. pl.—phil. bot. See the separate articles of *amæn. acad.* &c.

Linnæi fundamenta botanica, 1747. 8vo.

——— Philosophia botanica. 8vo. 1763.

——— Flora Zeylanica. 8vo. 1747.

Linnæi Genera plant. cura Schreber. Frankfort. 1789.—2 Vols. 8vo.

Linnæi Syst. Naturæ, cura Gmelin. Lipsiæ. 1791. 8vo.

Linnæi bibliotheca botanica, 1747. 8vo.

Linnæi claſses plantarum, 1747. 8vo.

Linnæi termini botanici a Hope, editi. Edinb. 8vo.

———————— Rotheram editi. 1779. 12mo.

———————— Giseke, 1781. 8vo.

Linn. (the son) or *supp.* Linnæi (filii) supplementum plantarum. 1781. 8vo.

Linn. (the son) dec. Linnæi (filii) decas plantarum rariorum horti Upsaliensis, decas I. & II. 1762, 1763. fol.

Linn. (the son) fasc. Linnæi (filii) plantarum rariorum horti Upsaliensis fascic. I. fol.

Linn. Trans. Transactions of the Linnæan Society. 2 vols. 4to.

Lipp enchiridium botanicum. 1779. 8vo.

Lob. adv. L'Obel (Jacobi I. Mag. Brit. Fran. & Hib. regis Botanographi, sive plantarum historiæ physica tam indigenarum & Britanniæ inquilinarum quam exoticarum scriptoris) adversaria, eorumque pars altera & illustramenta. Lond. 1605. fol. p. p. 549.

Lob. obs. Lobel plantarum seu stirpium observationes. fol. 1576.

Lob. ic. (Lobelii) plantarum seu stirpium icones. 1581.

Lob. adv. nova stirpium adversaria, auct. P. Pena, addit. Gal. Rondeletii. Fol. Antverpiæ. 1576.

Loefl. Plantæ Hispanicæ & Americanæ.

Lon. Loniceri botanicon, plantarum historiæ, 1565. fol.

Ludw. Ludwig ectypa vegetabilium Fasc. VIII. 1760 to 1764. fol.

Lyons fasciculus plantarum circa Cantabrigiam. 1763. 8vo.

Magn. bot. Magnol botanicum monspeliense sive plantarum circa Monspelium nascentium *πρωτογυναμων*. 1676. 12mo.

Mant. pl. Linnæi mantiſsa plantarum generum editionis VI. & specierum editiones II. 1767.

Mapp. Mappi historia plantarum Alsaticarum. 1742. 4to.

Marshall. Arbnstrum Americanum. Philiadelph. 1785.

Mart. Martyn catalogus horti botanici Cantabrigiensis.—1771. 8vo.—Mantiſsa plantarum horti botanici Cantabrigiensis. 1772. 8vo.

Mat. med. Linnæi materia medica, curante Schrebero.—1772. 8vo.

Matth. Matthioli commentarii in Dioscoridem. 1565. fol.

Matth. a C. B. Matthioli opera a Casparo Bauhino. 1674. fol.

Mattuscha enumeratio stirpium in Silesia sponte crescentium. 1779. 8vo.

Merr. Merrett pinax rerum naturalium Britannicarum. 1666. 12mo.

Mich. Micheli nova plantarum genera. 1729. fol.

Mieg. Specimen II. observationum botanicarum. 1776. 4to.

Mill. Miller's (Philip) abridgment of his gardener's dictionary. 1771. 4to.

Mill. ic. Miller's plates to the folio edition of his gardener's dictionary. 2 vols. fol. 1760.

Mill. ill. Miller's (John) illustration of the sexual system. 1777. fol.

Mill. off. Miller (Jos.) botanicum officinale, or a compendious herbal. 1722. 8vo.

Milne's botanical dictionary. 8vo.

Milne's indigenous botany.

Moench enumeratio plantarum indigenarum Haſsiæ præsertim inferiores. Pars I. 1777. 8vo.

Mont. Monti catalogi stirpium agri Bononiensis prodromus, gramina ac hujusmodi affinia complectens. 1719. 4to.

Moris umb. Morison plantarum umbelliferarum distributio nova. 1672. fol.

Mull. Flora Fridrichsdalina sive methodica descriptio plantarum in agro Fridrichsdalina simulque per regnum Daniæ crescentium. 1767. 8vo.

Murr. prodr. Murray prodromus designationis stirpium Gottingensium. 1770. 12mo.

Muntingius de vera herba Britannica. 1681. 4to.

Munt. Muntingii phytographia curiosa edente Kiggelaer. Pars I. II. 1702. fol.

Nat. delin. Nature delineated, 4 vols. 1740. 12mo.

Neck. Necker methodus muscorum. 1771. 8vo.

Neck. gallo-belg. Necker deliciæ Gallo-Belgicæ sylvestres. 1768. 12mo.

Neck. phys. Necker physiologia muscorum. 1774. 8vo.

Nomenclator Botanicus. Lipsiæ. 1782. 8vo.

Park. par. Parkinson's Paradisus terrestris, or a garden of all sorts of pleasant flowers, &c. 1629. fol.

Park. Parkinson's theatrum botanicum; the theatre of plants. 1640. fol.

Pena. See Lobel.

Penn. Scotl.—Hebr.—Wales. Pennant's tours in Scotland and Wales, and voyage to the Hebrides.

Pet. Ray's English herbal illustrated by figures, by James Petiver, (composing the former half of the 2d vol. of his Opera in fol.)

Pet. concord. Graminum, muscorum, fungorum, submarinorum, &c. Britannicorum concordia; a methodical concordance of British graſses, &c.

Pet. gaz. Petiver gazophylacium naturæ & artis.

Pet. mus. Museum Petiverianum, 1695. 8vo.

Pet. pter. Petiveri pterigraphia. In the latter half of the 2d volume of his works.

Phil. bot. Linnæi philosophia botanica. 1751. 8vo.

Philos. Trans. Philosophical Transactions. London.

Phytologia Britannica. 1650. Lond. 12mo.

Pitt. General view of the agriculture of the county of Stafford, by Mr. William Pitt. 4to. 1795.

Plot Oxf. Plot historia naturalis Oxoniensis. fol.

Plot Staff. Plot's natural history of Staffordshire. 1686. folio.

Pluk. Plukenetii phytographia. 1691. Tom. I. of his works in vol. IV. 1769. 4to; and the latter ends of Tom. III. and IV.

Pluk. alm. Plukenetii almagestum botanicum, 1696. (Tom. II. of his works.)

Pluk. amalth. Plukenetii amaltheum botanicum, 1705. (Tom. IV. of his works.)

Pluk. mant. Plukenetii almagesti botanici mantiſsa. 1700. (Tom. III. of his works.)

Pollich historia plantarum in palatinatu electorali sponte crescentium. Tomi III. 1777. 8vo.

R. syn. Raii synopsis methodica stirpium Britannicarum editio 3tia. 1724. 8vo.

R. cat. Raii catalogus plantarum Angliæ & insularum adjacentium. ed. I. 1670; ed. II. 1677. 12mo.

R. hist. Raii historia. Tomi III. 1686, and 1704. fol.

Reich. fl. Reichard flora moeno-francofurtana enumerans stirpes circa Francofurtum ad moenum crescentes. Pars I. 1772; pars II. 1778.

Reich. hort. Reichard enumeratio stirpium horti botanici Senkenbergiani qui Francofurti ad Moenum est. 1782. 12mo.

Reich. Reichard syst. plant. Linn. 4 vol. 8vo. 1780.

Reich. syl. Reichard sylloge opusculorum botanicorum. 1782. 8vo.

Relh. Relhan floræ Cantabrigiensis exhibens plantas agro Cantabrigiensi indigenas. 1785. 8vo.

Relh. suppl. Relhan floræ Cantabrigiensis supplementum. 1786. 8vo. ibid. alter. 1788.

Renealmi specimen historiæ plantarum. 1611. 4to.

Retz. fl. Retzi floræ scandinaviæ prodromus. 1779. 8vo.

Retz. or *Retz. obs.* Retzii observationes botanicæ. fasc. VI. folio.

Reyg. Reyger tentamen floræ gedanensis. Dantisci 1764. 12mo.

Riv. Rivini ordines plantarum flore monopetalo, & tetrapetalo. Lipsiæ. 1690 and 1691. fol.

Riv. pent. Rivini ordo plantarum flore irregulari pentapetalo. Lipsiæ. 1690. fol.

Roi. Du Roi diſsertatio inauguralis observationes botanicas sistens. 1771. 4to.

Rose's elements of botany. 1775. 8vo.

Roth. betyr. Roth betyrage zur botanick. Bremen 1782. 12mo.

Roth. vers. Roth verzeichniſs dergenigen pflanzen. Altenburg. 1781. 12mo.

Rosseau's letters on botany, by T. Martyn, B. D. 1785. 8vo.

Rottb. Rottböll descriptionum & iconum rariores & pro maxime parte novas plantas illustrantium. 1773. fol.

Rüling ordines naturales plantarum. Goetting. 1774. 8vo.

Ruppii flora jenensis sive enumeratio plantarum tam sponte circa Jenam et in locis vicinis nascentium, quam in hortis obviarum. 1726. 12mo.

Rupp. ab Hall. Ruppii flora jenensis edente Hallero. 1745. 12mo.

Rutty's eſsay towards a natural history of the county of Dublin. 2 vols. 1772. 8vo.

Sabbat. Sabbati hortus romanus secundum systema Tournefortii. Tom. IV. 1772—1777. folio.

Schæff. Schæffer fungorum qui in Bavaria & Palatinatu circa Ratisbonam nascuntur icones. Tomi IV. 1762 to 1774. 4to.

Scheuch. Scheuchzeri agrostographia, sive graminum, juncorum, cyperorum, cyperoidum iisque affinium historia, edente Hallero. 1775. 4to.

Scheuch. it. J. Jacobi Scheuchzeri itinera per Helvetiæ alpinas regiones. 1723. 4to.

Schmid. Scmidel icones plantarum & analyses partium, curante & edente Keller pictore norimbergensi. 1762. fol.—Manipulus II. curante et edente Bischoff chalcographo norimbergensi. 1776. fol.

Schmid. blas. Schmidel de Blasia, 1759. 4to.

Schmid. buxb. Schmidel de Buxbaumia, 1758. 4to.

Schmid. jungerm. Schmidel de Jungermania, 1760. 4to.

Scholler flora barbiensis. Lips. 1775, 8vo.

Schreb. Schreber Beschreibung der Graser. Plates 1 to 40.—(in German.) Leips. 1774. fol.

Schreb. ic. Schreber icones & descriptiones plantarum minus cognitarum. Decas I. 1756. fol.

Schreb. mant. Schreber mantiſsa editioni quartæ Linnæi materiæ medicæ. 1782. 8vo.

Schreb. phasc. Schreber de phasco. 1770. 4to.

Schreb. spic. Schreberi spicilegium flora Lipsicæ. 1771. 8vo.

Schreb. vert. Schreberi plantarum verticillatarum unilabiatarum genera et species. 1774. 4to.

Scop. Scopoli flora carniolica exhibens plantas Carnioliæ indigenas. Tomi II. 1772. 8vo.

Scop. ann. Scopoli annus I. II. & III. historico-naturalis. 1769; IV. 1770: V. 1772. small 8vo.

Scop. subt. Scopoli plantæ subterraneæ. 12mo.

Scopoli Introductio ad hist. naturalem. 8vo. Pragæ. 1777.

Seguieri plantæ veronensis, seu stirpium quæ in agro Veronenses reperiuntur methodica synopsis. Tomus II. 1745. 8vo.

Sheldr. Sheldrake's herbal of medicinal plants. fol.

Sibbald. Sibbaldi, Scotia illustrata. fol. 1684.

Sibthorpe. Flora Oxoniensis. 8vo.

Smith, Dr. J. E. diſsertation on sexes of plants. 8vo.

——— English Botany: the figures by J. Sowerby. Nos. 8vo.

——— Spicilegium botanicum. fasc. iii. fol.

——— Icones pictæ plantarum rariorum. fasc. fol.

——— Icones plantarum ineditæ. fasc. iii. fol.

——— tour on the Continent. 3 vols. 8vo. 1793.

Sole. Menthæ Britannicæ; or a new arrangement of British Mints, by W. Sole. 1. vol. fol.

Spalowsky dissertatio inauguralis de Cicuta, Flammula Jovis, Aconito, Pulsatilla, Gratiola, Dictamno, Stramonio, Hyoscyamo, & Colchico, 1777. 8vo.

Sp. pl. Linnæi species plantarum, exhibentes plantas rite cognitas ad genera relatas. Editio 2da. Tom. I. 1762; II. 1763. 8vo.

Stackh. Nereis Britannicæ; or descr. of the British marine plants. fol. 1795, by J. Stackhouse, Esq.

Stechmann de Artèmisia. 1775. 4to.

Stilling. Stillingfleet's miscellaneous tracts. 1762. 8vo.

Stoerck. [See Spalowsky.]

Swayne. [See Gram. pascua.]

Swert. Swertii florilegium. Tomi II. fol. Frank. 1612.

Symons. Pocket Flora of Great Britain, 12mo.

Syst. nat. Linnæi systema naturæ. ed. XII. Tomi III. 1766, and 1767, 8vo.

Syst. pl. Linnæi systema plantarum curante Reichard. Tomi IV. 1779 & 1780. 8vo.

Syst. veg. Linnæi systema vegetabilium, editio XIV. Murray. 1784.

Thal. Thalii sylva Hercynia sive catalogus plantarum sponte nascentium in montibus et locis vicinis Hercyniæ quæ respicit Saxoniam. 1588. small 4to. (published with Camerarii hort.)

Theophrasti opera. Lugdun. Batav. fol.

Thunb. Thunberg flora Japonica. 1784. 8vo.

Tilli catalogus plantarum horti Pisani. 1723. fol.

Tourn. Tournefort institutiones rei herbariæ. Tom. III. 1700. 4to.

Trag. Tragi de stirpium maxime vero earum quæ in Germania nascuntur commentarii, interprete Kybero. 1552. small 4to.

Trew. rar. Plantæ rariores edente Keller. 1763. fol.

Trew, editor of the Nuremberg edition of Blackwell. [See Blackwell.]

Vaill. Vaillant botanicon Parisiense ou denombrement par ordre alphabetique des plantes qui se trouvent aux environs de Paris. 1727. fol.

Vandelli Fasciculus plantarum. 4to. 1771.

Vell. Coloured figures of marine plants, with descriptions, by T. Velley, Esq. Bath, 1795. fol.

Volck. Volckameri flora Noribergensis, sive catalogus plantarum in agro Noribergensi tam sponte nascentium, quam exoticarum in viridariis ac medico horto enutritarum. 1700. 4to.

Walc. Walcott flora Britannicæ indigena. No. I. to XIV.

Wallace. Account of Orkney. 8vo. Lond. 1700.

Walther. Designatio plantarum quas hortus Waltheri pathologiæ profeſsoris Lipsiensis complectitur. 1735. 8vo.

Warner plantæ Woodfordienses; a catalogue of the more perfect plants growing spontaneously about Woodford in Eſsex. 1771. 12mo.

Weber. Weberi spicilegium floræ Goetingensis plantas imprimis crytogamicas Hercyniæ illustrans. 1778. 8vo.

Werner, observationes botan. 4to.

Weig. fl. Weigel flora pomerano-rugica exhibens plantas per Pomeraniam anteriorem suecicam & Rugiam sponte nascentes. 1769. 12mo.

Weig. hort. Weigil hortus Gryphicus. 1782. 4to.

Weis. Plantæ Cryptogamicæ Floræ Gottingensis. 8vo. 1770.

Wieg. Wiegel observationes botanicæ. 1772. 4to.

Wiggers primitiæ floræ Holsaticæ. 1780. 8vo.

Wilcke flora Gryphica exhibens plantas intra miliare sponte nascentes. 1765. 12mo.

Willdenow Flora Berolinensis. 8vo.

Willich obs. Willich observationes botanicæ de plantis quibusdam observationes. Gotting. 1762.

Willich ill. Willich illustrationes quædam botanicæ. Gotting. 1766.

Woodv. Woodville's medical botany. 4 vols. 4to. 1793.

Wulff. flora boruſsica. 1765. 8vo.

Zanon. Zanonii rariorum stirpium historia, edente Montio. Bonon. 1742.

Zinn catalogus plantarum horti academici & agri Gottingensis. 1757. 8vo.

ABBREVIATIONS.

Cal. Calyx.
Bloss. Blossom.
Stam. Stamen.
Pist. Pistil.
Filam. Filament.
S. Vess. Seed-vessel.
Germ. Germen.
Caps. Capsule.
Nect. Nectary.
Recept. Receptacle.
Ess. Char. Essential Character.
A. annual; enduring for a year or less.
B. biennial; enduring two years.
P. Perennial; enduring many years.
S. Shrub.
T. Tree.
Jan. January.—Feb. February.—Aug. August.—Sept. September.—Oct. October—Nov. November.—Dec. December.
M. male, or stameniferous flower.
F. Female, or pistilliferous flower.
H. Hermaphrodite flowers; such as contain both stamens and pistils.
N. Neutral flowers; such as contain neither stamen nor pistil.
Involucr. Involucrum.
Involucell. Involucellum.

RULES

FOR THE

PRONUNCIATION OF THE LINNÆAN NAMES.

1. THE English reader is desired to observe, that the accent, or the force of the voice, is to be thrown upon that syllable or letter which precedes the mark. Thus in *Ar'butus,* the *Ar* is to be the accented or strongly sounded syllable, and not the *bu,* as is commonly, though erroneously, the case; and in *Veroni'ca,* the *Ni* is to be the accented syllable, and not the *Ro,* which is also a common error.

2. That the letter *e* at the end of a name is always to be sounded; thus, the word *Elat'ine,* is to be pronounced *E-lat'-ti-ne,* with four syllables, and not *E-la-tine.*

3. That in words ending in *ides,* the *i* is always to be pronounced long.

4. That *ch* is to be pronounced *hard,* like the letter *k.*

5. That in words beginning with *sce* and *sci,* the *c* is to be pronounced *soft*; though it is allowed that some few words derived from the Greek are exceptions to this rule.

6. That in such words as have *sch,* the *c* is to be pronounced *hard.* Thus *Schœ'nus* is to be pronounced as if it were written *Ske'nus.*

7. That *c* and *g,* before *e* and *i,* and before *æ* and *œ,* are to be pronounced *soft,* but before the other vowels and diphthongs, *hard.*

THE

GENERA

OF

BRITISH PLANTS.

CLASS I.

MONANDRIA.

Containing flowers with 1 *Stamen only.*

THE flowers arranged under this class contain only one stamen. It might be supposed, that flowers containing only one stamen, and one, or at most, two pistils, must, from the simplicity of their structure, be easy to investigate; and undoubtedly they would be so, were it not for the minuteness of their parts. It fortunately happens, however, that the inexperienced botanist is not likely to encounter them at the commencement of his progress; the Salicornia is only found on the sea coast; the Hippuris is not very common; the Zanichellia and Chara are less rare, and the Callitriche is frequent enough in watery ditches and very slow streams, but neither of them are likely to attract attention, until a habit of accurate observation has been formed. The Aphanes, the only remaining Genus, may occasion some difficulty from its want of agreement with the Generic description; but the observations subjoined to that description will obviate every possible doubt.

MONANDRIA (1 Stamen.)

MONOGYNIA (1 Pistil.)

Chara.

Hippuris.

Salicornia.

Aphanes.

DIGYNIA (2 Pistils.)

Callitriche.

TETRAGYNIA (4 Pistils.)

Zannichellia.

MONOGYNIA.

CHA'RA. *Schmidel.* tab. 14. *Gærtner.* tab. 84.

Male flower at the base of the female, on the outside the calyx.

Calyx none.

Blossom none.

Stamen, *Filament* none. *Anther* globular, placed before the germen on the outer side, and at the base of the calyx; of one cell, not opening.

Female flower.

Calyx. *Cup* 4 leaves; *leafits* awl-shaped, unequal, permanent. Sometimes there is no calyx.

Blossom none.

Pistil. *Germen* turban-shaped, marked with 5 spiral grooves. *Style* none. *Summits* 5, undivided.

Seed-vessel; *Berry* egg-shaped, but oblong, spirally grooved, of one cell, inclosing the seeds within a very thin crust.

Seeds numerous, spherical, extremely small.

Observation.—For *Summits* 5, we should rather read *with 5 clefts*, as in the former editions of the genera; but the fact is, that the parts are so very minute as scarcely to allow of this point being ascertained. In this doubtful case, the seed-vessel having only one cell, determines its place in the order Monogynia.

A'PHANES. *Gærtn.* 73.

Calyx. *Cup* 1 leaf, tubular, permanent: *Mouth* flat, 4-clefted.

Bloss. None.

Stamens; *Filaments* 4; upright; awl-shaped; very small; standing upon the rim of the calyx. *Anthers* roundish.

Pistil; *Germen* egg-shaped. *Style* thread-shaped; as long as the stamens; growing from the base of the germen. *Summit* somewhat globular.

S. Vess. None; the *Rim* of the calyx closing, confines the seeds.

Seed egg-shaped; tapering; compressed; as long as the style.

Obs. It is nearly allied to the Alchemilla. It has sometimes only 1 pistil and 1 seed. Linn.—It seems now pretty generally agreed that the flowers contain only 1 stamen, 1 pistil, and 1 seed; so that notwithstanding its natural affinity to the genus Alchemilla, in the class Tetrandia, it ought in an artificial system to occupy its present place.

SALICOR'NIA. *Tournefort*, 485. *Gærtner*, 127.

Calyx 4-cornered; lopped; bellying; permanent.
Bloss. none.
Stamen. *Filament* single, undivided, longer than the cup. *Anther* double, oblong, upright.
Pistil. *Germen* oblong-egg-shaped. *Style* undivided, standing under the stamen. *Summit* cloven.
S. Vess. none. The calyx bellying and inflated contains the seed.
Seed single.

Obs. The number of stamens is not very certain; sometimes there are 2 in each flower. Linn.

HIPPU'RIS. *Gærtn.* 84.

Calyx a 2-lobed rim, crowning the germen.
Bloss. none.
Stamen. *Filament* single, upright, fixed within the outer lobe of the calyx. *Anther* roundish, compressed.
Pistil. *Germen* oblong, beneath. *Style* single, upright, awl-shaped, longer than the stamen, fixed to the inner lobe of the calyx. *Summit* acute.
S. Vess. none.
Seed single, roundish, naked.

Obs. Mr. Curtis describes the stamen as standing upon the top of the germen; and says, that at the close of summer, he has found flowers without a stamen; and Scopoli has observed, that such flowers are sometimes intermixed with the others.

DIGYNIA.

CALLI'TRICHE. *Gærtn.* 68.

Calyx none.
Bloss. *Petals* 2, bowed inwards, channelled, opposite to each other.
Stamen. *Filament* single, long, bowed. *Anther* simple.
Pist. *Germen* nearly round. *Styles* 2, hair-like, bowed.

Summits acute.

S. Vess. *Capsule* roundish, compressed; with 4 angles, and 2 cells.

Seeds solitary, oblong.

Obs. *Seeds* 4, naked, with a membranaceous border on the outer edge. (Gærtn.)—In the Callitriche *verna*, the stamens and pistils are found in separate flowers, but growing on the same plant. Linn. But sometimes even in this species, flowers are found which contain both stamens and pistils.

TETRAGYNIA.

ZANNICHEL'LIA. *Mich.* 34. *Gærtn.* 19.

Male flower.

Cal. none.

Bloss. none.

Stam. *Filament* single, simple, long, upright. *Anther* arrow-shaped, upright.

Female flowers placed near the other.

Cal. *Cup* 1 leaf, hardly perceptible, bellying, with 3 teeth.

Bloss. none.

Pist. *Germens* 4 to 8, horned, approaching. *Styles* 4 to 8, simple, rather expanding. *Summits* egg-shaped, flat, expanding outwardly.

S. Vess. *Capsules* upright, but expanding; compressed, crooked, tubercled on the back, the reclining style forming a beak; crust leather-like, of 1 cell, valve-less.

Seed solitary, oblong, bulging on one side.

Male flowers solitary, scattered.

Cal. *Cup* of 1 leaf, mouth slanting, very entire, acute at the back.

CLASS II.

DIANDRIA.

Containing Flowers with 2 Stamens only.

THIS class does not present any particular difficulty to the young botanist, except such as arises from the singular structure of the flowers in the genera Orchis, Ophrys, Serapias, Satyrium, and Cypripedium; and this difficulty consists in distinguishing the lip of the nectary from the petals. A reference to the figures of Orchis and Ophrys, in plate XII. will explain the matter, and it is necessary it should be well understood, because the discrimination of the species depends very much upon the lip of the nectary. In explaining the structure of the Viola, and some other genera, Linnæus considered the expanded lip of the nectary as one of the petals, and the horn-shaped projection behind it as the nectary. Had he done the same in the instances now under consideration, no peculiar difficulties would have arisen.

Pl. XII. Fig. A. A front view of the flower of the Orchis *mascula*.
B. A side view of the same.
p. p. p. p. The upper expanded petals, before and within which may be seen the inner approaching petals.
l. l. the lip of the nectary. *n. n.* its projecting horn. g. the twisted germen. *m. m.* floral leaves.
Fig. C. A front view of a flower of the Ophrys *myodes*.
D. A side view of the same.
p. p. p. p. the petals.
l. l. l. l. The lip of the nectary.
g. The twisted germen.

In the 5 genera mentioned above, though the germen is sufficiently obvious, the style and the summit are very indistinct. The stamens are evidently two. The anthers are composed of a number of elastic fibres united together; so that you may forcibly extend them to twice their natural length, but on releasing them, they instantly contract again. These elastic fibres are simple or branched, and each terminates in a minute body, but not containing pollen. From these singularities of structure, it is probable that the generation of these plants is effected in some mode not yet understood. The seeds are numerous, though very small; but I believe no person has yet been able to raise plants from them.

DIANDRIA. (2 Stamens.)

MONOGYNIA (1 Pistil.)

Ligustrum.
Circæa.
Veronica.
Pinguicula.
Utricularia.
Lycopus.
Salvia.
Orchis.
Satyrium.
Ophrys.
Malaxis.
Serapias.
Cypripedium.
Lemna.
Salix.
Fraxinus.

DIGYNIA (2 Pistils.)

Anthoxanthum.

DIANDRIA.

MONOGYNIA.

LIGUSTRUM. *Tourn.* 367. *Gærtn.* 92.

Calyx. *Cup* 1 leaf, tubular, very small, with 4 upright blunt teeth in its rim.

Bloss. 1 petal, funnel-shaped. *Tube* cylindrical, longer than the cup. *Border* expanded, divided into 4 egg-shaped segments.

Stamens. *Filaments* 2, simple, opposite. *Anthers* upright, nearly as long as the blossom.

Pistil. *Germen* nearly round. *Style* very short. *Summit* thick, blunt, cloven.

S. Vess. *Berry* globular, smooth, of 1 cell.

Seeds 4, convex on one side, angular on the other.

Obs. Berry 2-celled, lined with a thin membrane. Seeds, 2 in each cell. Gærtn.

CIRCÆ'A. *Tourn.* 155. *Gærtn.* 24.

Calyx. *Cup* 1 leaf, superior, deciduous. *Tube* thread-shaped, very short. *Border* with 2 divisions, segments sharp, egg-shaped, concave, bent outwards.

Bloss. *Petals* 2, inversely heart-shaped, expanding, equal, mostly shorter than the cup.

Stam. *Filaments* 2, hair-like, upright, as long as the cup. *Anthers* roundish.

Pist. *Germen* turban-shaped, beneath. *Style* thread-shaped, as long as the anthers. *Summit* blunt, notched at the end.

S. Vess. *Capsule* betwixt egg and turban-shaped, covered with strong hairs, with 2 cells and 2 valves, opening from the base upwards.

Seeds solitary, oblong, narrow towards the base.

Obs. Calyx properly 2-leaved.

VERONI'CA. *Tourn.* 60. *Gærtn.* 54.

Cal. *Cup* with 4 divisions, permanent. *Segments* spear-shaped, acute.

Bloss. wheel-shaped, of 1 petal. *Tube* nearly as long as the cup. *Border* flat, divided into 4 egg-shaped segments. *Lower Segment* narrowest, that opposite to it the broadest.

Stam. *Filaments* 2, thinnest at the bottom, ascending. *Anthers* oblong.

Pist. *Germen* compressed. *Style* thread-shaped, declining, as long as the stamens. *Summit* undivided.

S. Vess. *Capsule* inversely heart-shaped, compressed at the point, with 2 cells and 4 valves.

Seeds several, roundish.

Obs. The tube of the blossom is generally very short; less so in the first 3 species. Linn. In Veronica *montana*, the seed-vessel is roundish, with a notch at the base, and at the top, (Reich.) and in V. *hederifolia*, it is like 2 united globes.

PINGUI'CULA. *Tourn.* 74. *Gærtn.* 112.

Cal. *Cup* gaping, small, acute, permanent. *Upper Lip* upright, with 3 clefts; *Lower Lip* reflected, cloven.

Bloss. 1 petal, gaping. *Longer Lip* straight, blunt, with 3 clefts, falling back; *Shorter Lip* cloven, somewhat blunt and expanding. *Nectary* horn-shaped, being a production of the lower and hinder part of the petal.

Stam. *Filaments* 2, cylindrical, crooked, ascending, shorter than the cup. *Anthers* roundish.

Pist. *Germen* globular. *Style* very short. *Summit* with 2 lips; *Upper Lip* largest, flat, reflected, covering the anthers; *Lower Lip* shorter, very narrow, upright, cloven.

S. Vess. *Capsule* egg-shaped, of 1 cell, compressed, and opening at the point.

Seeds many, cylindrical. *Receptacle* loose.

UTRICULA'RIA. *Fl. dan.* 128 and 138.

Cal. *Cup* 2 leaves, leafits equal, very small, egg-shaped, concave, deciduous.

Bloss. 1 petal, gaping. *Upper Lip* flat, blunt, upright. *Lower Lip* larger, flat, entire. A heart-shaped *Palate* standing prominent betwixt the lips. *Nectary* a little horn, projecting from the base of the petal.

STAM. *Filaments* 2, very short, bent inwards. *Anthers* small, and adhering together.

PIST. *Germen* globular. *Style* thread-shaped, as long as the cup. *Summit* conical.

S. VESS. *Capsule* large, globular, of 1 cell.

SEEDS several.

OBS. The plants of this genus are very remarkable; the roots being loaded with small membranaceous bladders.

LY'COPUS. *Tourn.* 89.

CAL. *Cup* 1 tubular leaf, with 5 shallow clefts; *Segments* narrow and acute.

BLOSS. 1 petal, irregular. *Tube* cylindrical, as long as the cup. *Border* with 4 clefts, blunt, open; *Segments* nearly equal, but the *lowermost* somewhat smaller; the *uppermost* broader, and notched at the end.

STAM. *Filaments* 2, generally longer than the blossom and bending under its upper segment. *Anthers* small.

PIST. *Germen* with 4 clefts. *Style* thread-shaped, straight; as long as the stamens. *Summit* cloven, reflected.

S. VESS. none.

SEEDS 4, roundish, blunt, at the bottom of the cup.

SAL'VIA. *Tourn.* 83. 82. *Gærtn.* 66.

CAL. *Cup* 1 leaf, tubular, scored, enlarging gradually upwards, and compressed at the top. *Rim* upright, with 2 lips; *Lower Lip* with 2 teeth.

BLOSS. 1 petal, irregular. *Tube* compressed, enlarging gradually upwards. *Border* gaping. *Upper Lip* concave, compressed, bowed inwards, notched at the end. *Lower Lip* broad, with 3 clefts. The *Middle Segment* largest, roundish, notched at the end.

STAM. *Filaments* 2, very short, supporting 2 others crosswise by the middle, which have *Glands* at the lower, and *Anthers* at the upper end.

PIST. *Germen* with 4 clefts. *Style* thread-shaped, very long, adjoining the stamens. *Summit* cloven.

S. VESS. none, the *Cup* closing a little, contains the seeds in its bottom.

SEEDS 4, roundish.

Obs. The singular forked filaments constitute the essential character of this genus. Linn. The rudiments of 2 stamens appear in the mouth of the blossom, but they have no anthers. The glands in most species are callous, but in a few they appear like anthers, and sometimes contain a small quantity of pollen.

OR'CHIS. *Vaill.* tab. 31. *Tourn.* 247.

Cal. *Sheaths* scattered. *Fruit-stalk* undivided. *Cup* none.

Bloss. *Petals* 5, *outer* ones 3, *inner* ones 2, approaching upwards, so as to form a helmet.

Nectary 1 leaf, fixed by the lower side to the receptacle between the division of the petals. *Upper Lip* upright, very short. *Lower Lip* large, expanding, broad. *Tube* standing behind, shaped like a horn, hanging a little down.

Stam. *Filaments* 2, very slender, and very short, standing on the pistil. *Anthers* inversely egg-shaped, upright, covered by a fold of the upper lip of the nectary, forming 2 cells.

Pist. *Germen* beneath, oblong, twisted. *Style* fixed to the upper lip of the nectary, very short. *Summit* compressed, blunt.

S. Vess. *Capsule* oblong, with 1 cell, 3 keels, 3 valves, opening in 3 places under the keels, continuing connected at the base and at the end.

Seeds numerous, very small, like saw dust.

SATY'RIUM. *Vaill.* 30. *f.* 6.

Cal. *Sheaths* scattered. *Fruit-stalk* undivided. *Cup* none.

Bloss. *Petals* 5, oblong egg-shaped, 3 more outwards, the 2 *inner* approaching above, in form of a helmet.

Nectary of 1 leaf, fixed by the lower side to the receptacle, between the division of the petals. *Upper Lip* very short, upright. *Lower Lip* flat, pendent, with a bag like a double purse projecting behind.

Stam. *Filaments* 2, very slender, very short, standing on the pistil. *Anthers* inversely egg-shaped, covered by a fold of the upper lip of the nectary, forming 2 cells.

Pist. *Germen* beneath, oblong, twisted. *Style* very short, fixed to the upper lip of the nectary. *Summit* compressed, blunt.

S. Vess. *Capsule* oblong, with 1 cell, 3 keels, 3 valves, opening in 3 places under the keels, connected at the base and at the end.

Seeds numerous, very small, like saw-dust.

O'PHRYS. *Tourn.* 250.

Cal. *Sheaths* scattered. *Fruit-stalks* undivided. *Cup* none.

Bloss. *Petals* 5, oblong, approaching upwards, equal, 2 of them placed outwards.

Nectary longer than the petals, hanging down, behind only slightly keeled.

Stam. *Filaments* 2, very short, standing on the pistil. *Anthers* upright, covered by the inner edge of the nectary.

Pist. *Germen* beneath, oblong, twisted. *Style* fixed to the inner edge of the nectary. *Summit* indistinct.

S. Vess. *Capsule* somewhat egg-shaped, 3-edged, blunt, scored, with 3 valves, and 1 cell, opening at the keeled angles.

Seeds numerous, like saw-dust. *Receptacle* strap-shaped, growing to each valve of the seed-vessel.

Obs. In Ophrys *Corallorhiza* there are 4 Stamens, viz. 2 in each cell. (R.)

MALAX'IS. (*Swartz.*) *E. bot.* 72.

Cal. *Sheath* none. *Cup* none.

Bloss. *Petals* 5, 3 *outer*, 2 above and 1 below, spear-shaped, blunt, expanding; 2 *inner* strap-shaped, acute, bent round the germen.

Nectary in the centre of the blossom, smaller than the petals, concave with convex edges, tapering to a point behind, cloven in front.

Stam. *Anthers* 2, egg-shaped, with scarcely any filament, fixed to the edge of the hollow of the pistil, with 2 little cavities at the bottom.

Pist. *Germen* on a little fruit-stalk, roundish beneath. *Style*, a little cup-like hollow in the centre of the nectary, very short, expanding, extending half way round, with the stamens fixed to its hinder edge. *Summit* in front of the hollow, near the stamens.

S. Vess. *Capsule* oblong, 3-keeled, of 1 cell, opening under the keels, but continuing united at each end.

Seeds extremely minute.

Obs. Dr. Smith considers the blossom in this genus as being reversed, the odd Petal of the 3 outer ones being lowermost, and that this has therefore been erroneously called the lip; and that the most striking character is the 2 upright petals at the top, instead of the single one in all our other Orchises. The nectary, moreover, points upwards, embracing the stamens and style. See E. bot. p. 72.

SERA'PIAS. *Gærtn.* 14. *Tourn.* 249. Helleborine.

Cal. *Sheaths* scattered. *Fruit-stalk* undivided. *Cup* none.

Bloss. *Petals* 5, oblong egg-shaped, open, but rather upright, approaching upwards.

Nectary as long as the petals, hollowed at the base, filled with honey, egg-shaped, bulging beneath, cloven into 3, segments acute, the middlemost heart-shaped, blunt, cloven at the seam of the base, with 3 teeth.

Stam. *Filaments* 2, very short, fixed to the pistil. *Anthers* upright, under the upper lip of the nectary.

Pist. *Germen* beneath, oblong, twisted. *Style* growing to the upper lip of the nectary. *Summit* indistinct.

S. Ves. *Capsule* inversely egg-shaped, with 3 blunt edges, 3 keels growing to them, and 3 valves opening under the keels, 1 celled.

Seeds numerous, like saw-dust. *Receptacle* strap-shaped, growing to each valve of the seed-vessel.

CYPRIPE'DIUM. *Tourn.* 249. Calceolus.

Cal. *Sheath* scattered. *Fruit-stalk* undivided. *Cup* none.

Bloss. *Petals* 4 or 5, spear-shaped, very long, expanding, upright.

Nectary within the lower petal, shaped like a slipper, blown up, blunt, hollow, shorter and broader than the petals; the *Upper Lip* small, egg-shaped, flat, bent inwards.

Stam. *Filaments* 2, very short, standing on the pistil. *Anthers* upright, covered by the upper lip of the nectary.

Pist. *Germen* beneath, long, twisted. *Style* very short, growing to the upper lip of the nectary. *Summit* indistinct.

S. Vess. *Capsule* inversely egg-shaped, with 3 blunt edges, and 3 seams, under which it opens at the angles; *Valves* 3; *Cell* 1.

Seeds numerous, very small. *Receptacle* strap-shaped, growing lengthwise to each valve of the seed-vessel.

LEM'NA. *Mich.* 11. 3.

Male flower.

Cal. 1 leaf, circular, opening at the side, obliquely dilated outwardly, blunt, expanding, depressed, large, entire.

Bloss. none.

Stam. *Filaments* 2, awl-shaped, crooked, as long as the calyx. *Anthers* double, globular, short, permanent.

Pist. *Germen* egg-shaped. *Style* short. *Summit* indistinct.

S. Vess. barren.

Female flower on the same plant.

Cal. as above.

Bloss. none.

Pist. *Germen* somewhat egg-shaped. *Style* short, permanent. *Summit* simple.

S. Vess. *Capsule* globular, tapering to a point; with 1 cell.

Seeds several, oblong, acute at each end, nearly as long as the capsule, scored on one side.

Obs. Perfect hermaphrodite flowers have sometimes been observed. (Schreb.)

SA'LIX. *Tourn.* 364.

Male flowers.

Cal. *Catkin* oblong, tiled on every side. *Involucrum* forming a bud, which is composed of

Scales, inclosing a single flower, oblong, flat, expanding.

Bloss. *Petals* none.

Nectary a cylindrical gland, very small, lopped, containing honey, placed in the centre of the flower.

Stam. *Filaments* 2, straight, thread-shaped, longer than the cup. *Anthers* double, with 4 cells.

Female flower.

Cal. *Catkin* as above.

Scales as above.

Bloss. none.

Pist. *Germen* egg-shaped, tapering into a *Style* hardly distinct from the germen, rather longer than the scales of the calyx. *Summits* 2, cloven, upright.

S. Vess. *Capsule* egg-awl-shaped, with 1 cell, and 2 valves. *Valves* rolling back.

Seeds numerous, egg-shaped, very small, crowned with undivided hair-like down.

Obs. Stamens in some species 3 or 5, unequal in length. In the S. *hermaphroditica* the stamens and pistils are within the same calyx. Linn—In some species the filaments, in others the anthers, are united. Schreb.—In S. *monandria* there is only 1 stamen.

FRAX'INUS. *Tourn.* 343. *Gærtn.* 49.

Hermaphrodite flowers.

Cal. none, or a *Cup* of 1 leaf, with 4 divisions, upright, small, acute.

Blos. none; or *Petals* 4, strap-shaped, long, acute, upright.

Stam. *Filaments* 2, upright, much shorter than the blossom. *Anthers* upright, oblong, with 4 furrows.

Pist. *Germen* egg-shaped, compressed. *Style* cylindrical, upright. *Summit* rather thick, cloven.

S. Vess. spear-shaped, compressed, membranaceous, with 1 cell.

Seed spear-shaped, compressed, membranaceous, of 1 cell.

Female flowers.

Empal. Bloss. Pist. S. Vess. and Seed as above.

Obs. In Frax. *excelsior*, the hermaphrodite flowers are frequently interspersed with female ones, and the reverse. This has neither blossom nor calyx. Linn.—Capsule, egg-oblong, leaf-like upwards, 2-celled, but 1 cell barren. Gærtn.

DIGYNIA.

ANTHOXAN'THUM. Pl. II. fig. 1.

Cal. *Husk*, 2 valves containing 1 flower. *Valves* concave, egg-shaped, taper, the innermost the largest.

Bloss. *Husk* 2 valves, the length of the larger valve of the calyx. Each valve sends out an awn from its back, at the lower part, and 1 of the awns is jointed. *Nectary* 2 leaves, very slender, cylindrical. The leaves nearly egg-shaped, and one enfolding the other.

Stam. *Filaments* 2, hair-like, very long. *Anthers* oblong, forked at each end.

PIST. *Germen* oblong. *Styles* 2, thread-shaped. *Summits* undivided.

S. VESS. The *Husks* of the blossom grow to the seed.

SEED single, nearly cylindrical, tapering at each end.

OBS. It was very justly remarked to me by Miss Giddy, that the valves of the blossom are shorter than the calyx, and so they are figured very properly in the Flora Danica, 666: and less distinctly so in the fig. referred to above.

CLASS III.

TRIANDRIA.

Containing Plants with 3 Stamens in each Flower.

THIS Class comprehends, besides other plants, the greater part of the GRASSES, and some other vegetables nearly allied to them. Although the flowers in these are generally disregarded, they will not, to an attentive observer, appear less curiously constructed, than those which boast of gayer colours and more conspicuous parts.

The great solicitude of Nature for the preservation of grasses is evident from this; that the more the leaves are consumed, the more the roots increase. The great Author of Nature designed, that the delightful verdure of these plants should cover the surface of the earth, and that they should afford nourishment to an almost infinite number of animals. But what increases our admiration most, is, that although the GRASSES constitute the principal food of herbivorous animals, yet, whilst they are left at liberty in the pasture, they leave untouched the straws which support the flowers; that the seeds may ripen and sow themselves. Add to this, that many of the seemingly dry and dead leaves of Grasses revive, and renew their verdure in the spring. And on lofty mountains, where the summer heats are hardly sufficient to ripen the seeds, the most common

Grasses are, the FESTUCA *ovina*, the POA *alpina*, and the AIRA *cæspitosa*, all which are viviparous, and consequently propagate themselves without seeds.

In general, the leaves furnish pasturage for cattle; the smaller seeds are food for birds, and the larger for men. But some are preferred to others; as, the FESTUCA for Sheep; the POA for Cows; the PHALARIS for Canary-birds and Linnets; the AVENA for Horses; the SECALE, HORDEUM, and TRITICUM for Man.

Variety of INSECTS also derive their nourishment from grasses; as the *Papilio mæra, Pap. Ægeria, Pap. Galathea, Pap. Jurtina, Pap. Cinxia, Phalæna quercifolia, Ph. Potatoria, Ph. culmella, Chrysomela Graminis*, and several others, which will be mentioned under the different species.

No part of Botany appeared to me more difficult than the study of GRASSES; but the method of accurate dissection and observation once adopted, no part was more certain or more easy. However, when the great importance of the subject is considered, we cannot labour too much to fix the public attention to it, by rendering it as easy as possible: for which reason the exceptions are carefully noted under such subdivision of the orders, and in the following plate an example is selected from each genus, taken from the Amœnitates Academicæ of Linnæus. To gain a clear idea of the structure of the flowers, they must be examined just before the *Anthers* discharge their Pollen; and by comparing them in that state with the figures in the plate, and with the generic description, the principal difficulties will soon be surmounted. The Botanic Microscope will be found extremely useful in dissecting the minuter parts.

EXPLANATION *of* PLATE II.

FIG. 1. ANTHOXAN'THUM. *a a* husks of the calyx, *b* the awn of the inner valve of the blossom, twisted and jointed. *c* the straight awn of the outer valve of the blossom. *d d* the two anthers. *e e* the two styles.

FIG. 2. SCHŒ'NUS. The six petals, the three stamens, and anthers; the germens, the style, and the summit cloven into three parts.

Fig. 3. Cype′rus. *a* the tiled spike pointing from two opposite lines. *b* the scale of the calyx. *c c c* the anthers. *d* the style. *e e e* the summits.

Fig. 4. Scir′pus. *b* the tiled spike. *a* the scale of the calyx. *c c c* the stamens and anthers. *d* the germen, a little woolly.

Fig. 5. Erioph′orum. *a.* the woolly tiled spike. *b* the scale of the calyx including the hairy germen, the stamens, and the pistil.

Fig. 6. Nar′dus. A the spike pointing one way. *c c c* the blossoms. B one of the florets a little magnified. *a* the lower and larger valve which embraces the smaller valve *b*, which is here drawn out of its natural situation. *c c c* the anthers.

Fig. 7. Pan′icum. *b b* the two equal valves of the calyx. *a* the third smaller and outer valve. *c c* the valves of the blossoms. *d d d* the anthers. *e e* the downy summits of the styles.

Fig. 8. Alopecu′rus. *a a* the valves of the calyx. *b* the single valve of the blossom, with the awn *c* proceeding from its base. *d d d* the anthers.

Fig. 9. Phle′um. *a a* the husks of the calyx, opened and magnified to shew the blossom. *b* the floret in its natural state to shew the two points at the top of it. *c c c* the anthers.

Fig. 10. Phala′ris. *a a* the keeled husks of the calyx. *b b* the husks of the blossom. *c c* the anthers.

Fig. 11. Mil′ium. *a a* the husks of the calyx. *b b b* the anthers. *c c* pencil-shaped summits.

Fig. 12. Agro′stis. *a a* the two-pointed valves of the calyx. *b b* the two valves of the blossom. *c c c* the anthers.

Fig. 13. Dac′tylis. *a* the outer and larger valve of the calyx. *b* the shorter valve. *c* the keel-shaped valve of the *blossom*. *e e e* the anthers. *d* the panicle pointing one way.

Fig. 14. Sti′pa. *a a* the valves of the calyx. *b* the outer valve of the blossom, with the awn jointed at the base and twisted. *c* the inner valve of the blossom. *d d* the downy awn. *e e* the hairy shafts and summits. *f f f* the anthers.

Fig. 15. Ai′ra. *a a* the calyx, *b b* the blossoms, without the rudiment of a third betwixt them.

Fig. 16. Mel′ica. *a a* the calyx. *b b* the fertile blossoms with *e* the rudiment of a third blossom betwixt them.

Fig. 17. Bri′za. *a a* the valves of the calyx. *b b b b* the blossoms, of which the outer valves only are visible. B one of the blossoms taken out of the little spike. *c c* the outer heart-shaped valve of the blossom. *d d* the inner valve inversely egg-shaped.

Fig. 18. Po′a. A an entire little spike. *a a* the two husks of the calyx. *b b b b b* the blossoms. B one of the florets separated from the little spike. *c* the outer valve. *d* the inner valve of the blossom. *e e e* the forked anthers. *f f* the woolly summits.

Fig. 19. Festu′ca. *a a* the valves of the calyx. *b b b b b b* the blossoms of the little spike terminating in acute points. *c* the inner valve of one of the blossoms.

Fig. 20. Bro′mus. *a a* the calyx. *b b b* the blossoms, the outer valves only of which are visible, with the awns growing from beneath the point.

Fig. 21. Ave′na. *a a* the valves of the calyx. *b b b* the florets, the outer valves of which are furnished with a twisted jointed awn, growing from the back. *d d d* the inner valves. *c c c c c c* the anthers.

Fig. 22. Arun′do. *a a* the valves of the calyx. *b b b* the woolly blossoms.

Fig. 23. Seca′le. *a a* the valves of the calyx. *b b b b* the blossoms; the inner valve of which is flat, but the outer concave and furnished with an awn. *c c* the spike-stalk with its little teeth.

Fig. 24. Trit′icum. *a a* the blunt valves of the calyx, embracing the three blossoms *b b b*, the outer valve only of which is seen, furnished with an awn. *c c* the spike-stalk.

Fig. 25. Hor′deum. *a a a a a a* the six valves of the calyx, two of which belong to each of the blossoms *b b b*. *c c c* the long awns of the outer valves of the blossoms. *e e* the naked spike-stalk as it appears after the florets are pulled off.

FIG. 26. E'LYMUS. *a a a a a a* the valves of the calyx, two of which belong to each little spike *b b b*. *e* the calyx as it appears after the little spikes are taken away.

FIG. 27. LO'LIUM. *a a a* the calyxes of one valve. *b b b* the little spikes consisting of several florets. *c* one of the florets opened to shew the two valves of the blossom.

FIG. 28. CYNOSU'RUS. (A) the spike pointing all one way, composed of the florets (B) in which *a* represents the involucrum with many clefts; *b b* the valves of the calyx, containing several florets, and *c c* the florets.

FIG. 29. CA'REX. *a* the tiled catkin. *c* the scaly calyx of the fertile floret. *d* the nectary cloven at the top. *b* the germen, and *g* the styles taken out of the nectary: *h h h* the summits. *e* the scaly calyx of the barren floret, with the three stamens *f f f*.

FIG. 30. HOL'CUS. *a a* the barren florets on short pedicles. *b* the fertile floret, furnished with stamens and pistils.

FIG. 31. ROTTBOL'LIA. *a a a a a* joints of the spike-stalk. *bc bc bc bc* valves of the calyx placed outwards, the edges of one lapping over those of the other.

FIG. 32. LAGU'RUS. *a* an entire spike. *b* a floret apart. *c* the bloss. containing the seed.

1 Anthoxanthum
2 Schœnus
3 Cyperus
4 Scirpus
5 Eriophorum
A
B
6 Nardus
7 Panicum
8 Alopecurus
9 Phleum
10 Phalaris
11 Milium
12 Agrostis
13 Dactylis
15 Aira
16 Melica
B
A
17 Briza
B
18 Poa
19 Festuca
20 Bromus
21 Avena
22 Arundo
23 Secale
24 Triticum
25 Hordeum
32 Lagurus
26 Elymus
27 Lolium
14 Stipa
B
A
28 Cynosurus
29 Carex
30 Holcus
31 Rottbollia

GRASSES Pl. II. to front P. 134.

From Linn. amœn. acad. Vol. II. t. 2 and 3, at p. 196.

TRIANDRIA (3 Stamens.)

Monogynia (1 Pistil.)

Valeriana.
Bryonia.
Ruscus.
Crocus.
Iris.
Nardus.
Eriophorum.
Scirpus.
Cyperus.
Schœnus.
Carex.
Typha.
Sparganium.

Digynia (2 Pistils.)

Phalaris.
Panicum.
Phleum.
Alopecurus.
Milium.
Agrostis.
Holcus.
Aira.
Melica.
Sesleria.
Poa.
Briza.
Dactylis.
Cynosurus.
Festuca.
Bromus.
Stipa.
Avena.
Arundo.
Lolium.
Rottbollia.
Elymus.
Hordeum.
Triticum.

Trigynia (3 Pistils.)

Amaranthus.
Montia.
Tillæa.
Holosteum.
Polycarpon.

Enneagynia (9 Pistils.)

Empetrum.

TRIANDRIA.

MONOGYNIA.

VALERIA'NA. *Tourn.* 52. *Gærtn.* 86.

CAL. hardly any, but a border on the germen.
BLOSS. *Tube* bellied on the under side, containing honey. *Border* with 5 clefts. *Segments* blunt.
STAM. 3, or fewer than 3, awl-shaped, upright, as long as the blossom. *Anthers* roundish.
PIST. *Germen* beneath. *Style* thread-shaped, as long as the stamens. *Summit* thickish.
S. VESS. a crust, not opening, deciduous, crowned.
SEEDS solitary, oblong.

OBS. There is a wonderful diversity in the parts of the flowers in different species of Valerian, as well in number as in figure. LINN.—Thus, in Valer. rubra, the flowers have only 1 stamen; in Val. dioica, the stamens and pistils are on different plants.

BRYO'NIA. *Tourn.* 28. *Gærtn.* 88.

Male flowers.
CAL. *Cup* 1 leaf, bell-shaped, with 5 awl-shaped teeth.
BLOSS. with 5 divisions, bell-shaped, fixed to the cup. *Segments* egg-shaped.
STAM. *Filaments* 3, very short. *Anthers* 5, only 1 on the 3d filament, but 2 on each of the others growing together.

Female flowers on the same plant.
CAL. *Cup* as above, superior, deciduous.
BLOSS. as above.
PIST. *Germen* beneath. *Style* with 3 clefts, as long as the blossom when open. *Summits* notched at the end, spreading.
S. VESS. *Berry* roundish, smooth.
SEEDS few, enclosed in distinct cells.

OBS. In the Bryonia *dioica* the stameniferous, and pistilliferous, or male and female flowers, are found on different plants.

RUS'CUS. *Tourn.* 15. *Gærtn.* 16.

Male flowers.

CAL. *Cup* with 6 leaves, upright, but expanding. *Leafits* egg-shaped, convex, the edges at the side reflected.

BLOSS. none, unless you consider every other leaf of the cup as such.

Nectary egg-shaped, central, as large as the cup, blown up, open at the rim, upright, coloured.

STAM. *Filaments* none. *Anthers* 3, expanding, placed upon the end of the nectary, united at the base.

Female flowers.

CAL. BLOSS. and *Nectary*, as above.

PIST. *Germen* oblong egg-shaped, hidden within the nectary. *Style* cylindrical, as long as the nectary. *Summit* blunt, projecting through the mouth of the nectary.

S. VESS. *Berry* globular, with 3 cells.

SEEDS 2, globular.

OBS. In this and other genera nearly related to it, it is seldom that all the seeds come to perfection; for the most part one seed takes to enlarge, and by pressure destroys the others.

CRO'CUS. *Tourn.* 184.

CAL. *Sheath* 1 leaf.

BLOSS. *Tube* simple, long. *Border* with 6 divisions, upright. *Segments* equal, oblong, egg-shaped.

STAM. *Filaments* 3, awl-shaped, shorter than the blossom. *Anthers* arrow-shaped.

PIST. *Germen* beneath, roundish. *Style* thread-shaped, as long as the stamens. *Summits* 3, rolled in a spiral, serrated.

S. VESS. *Capsule* roundish, with 3 lobes, 3 cells, and 3 valves.

SEEDS several, round.

I'RIS. *Tourn.* 186, 188. *Gærtn.* 13.

CAL. *Sheaths* 2 valves, separating the flowers, permanent.

BLOSS. with 6 divisions. *Segments* oblong, blunt. The 3 outer ones reflected, the other 3 upright, more acute, all connected together by the claws, so as to form a tube.

Stam. *Filaments* 3, awl-shaped, lying upon the reflected segments. *Anthers* oblong, straight, depressed.

Pist. *Germen* beneath, oblong. *Style* simple, very short. *Summits* 3, very large, resembling petals; keeled within, furrowed on the outside, leaning on the stamens, 2-lipped, outer lip small, notched at the end; inner lip larger, cloven, a little bent inwards.

S. Ves. *Capsule* oblong, angular, with 3 cells and 3 valves.

Seeds several, large.

Obs. In some species the nectary is a long line marked on the base of the reflected petals, and set with hair-like substances, in others there are 3 nectariferous dots at the base of the flower on the outside. In some the capsule has 3, in others 6 angles. Linn.—The outer lip of the summit performs the proper office of the summit. (Schkuhr. from Schreber.)

NAR'DUS. Pl. 2. f. 6. *Schreb.* 7. F. G. E. D. C. H.

Cal. none.

Blos. 2 valves. *Outer valve* long, spear-strap-shaped, sharp pointed, enclosing the *Lesser Valve,* which is strap-shaped, and sharp pointed.

Stam. *Filaments* 3, hair-like, shorter than the blossom. *Anthers* oblong.

Pist. *Germen* oblong. *Style* single, thread-shaped, long, downy. *Summit* undivided.

S. Vess. none; the blossom adheres to the seed, without opening.

Seed single, enclosed in the blossom, long and narrow, tapering to a point at each end, the upper part narrowest.

ERIO'PHORUM. Pl. II. f. 5. *Gærtn.* 2.

Cal. *Spike* tiled on every side. *Scales* separating the florets, egg-oblong, flat, but bent inwards, membranaceous, limber, tapering to a point.

Bloss. none.

Stam. *Filaments* 3, hair-like. *Anthers* upright, oblong.

Pist. *Germen* very small. *Style* thread-shaped, as long as the scale of the calyx. *Summits* 3, longer than the style, reflected.

S. Vess. none.

Seed 3-cornered, tapering to a point, furnished with soft hairs, which are longer than the spike.

Obs. The presence of the stamens and pistils is different in some of the species; in some they are as described above, in the same floret; in others in different florets on the same or on different plants. (Schreb.)

SCIR'PUS. Pl. II. f. 4. *Tourn.* 300. *Gærtn.* 2.

Cal. *Spike* tiled on every side, the florets separated by *Scales*, which are egg-shaped, flat, but bent inwards.
Bloss. none.
Stam. *Filaments* 3, which continue growing longer. *Anthers* oblong.
Pist. *Germen* very small. *Style* thread-shaped, long. *Summits* 3, hair-like.
S. Vess. none.
Seed single, 3-cornered, taper pointed, sometimes furnished with soft hairs, which are shorter than the calyx.

Obs. Soft hairs in some species grow to the point, in others to the base of the seed. Linn.—In Scirpus palustris, there are only 2 summits. (Leers.) In this genus all the scales contain fertile florets, whilst in the Schœnus the lower scales are always barren.

CYPE'RUS. Pl. II. fig. 3. *Tourn.* 299. *Gærtn.* 2.

Cal. *Spike* 2-rowed, tiled. *Scales* egg-shaped, keeled, flat, but bent inwards, separating the florets.
Bloss. none.
Stam. *Filaments* 3, very short. *Anthers* oblong, furrowed.
Pist. *Germen* very small. *Style* thread-shaped, very long. *Summits* 3, hair-like.
S. Vess. none.
Seed single, 3-cornered, tapering to a point, without hairs.

SCHŒ'NUS. Pl. II. f. 2.

Cal. *Husks* chaffy, of 1 valve, crowded together.
Bloss. none.
Stam. *Filaments* 3, hair-like. *Anthers* oblong, upright.
Pist. *Germen* egg-shaped, somewhat 3-cornered, blunt. *Style* bristle-shaped, as long as the husks. *Summit* slender, with 2 or 3 clefts.
S. Vess. none.
Seed single, roundish, within the husks.

Obs. In some species the seeds are surrounded by small bristles growing to the proper receptacle. Linn.—Outer husks hard, stiff, short, empty. Upper or inner husks soft, longer, fertile. St. Lower husks barren, upper ones fertile; but in the genus Scirpus, they are all fertile, and this seems the best distinction of the two genera. (Scop.)

CA'REX. Pl. II. fig. 29. *Tourn.* 300. Cyperoides. *Gærtn.* 2.

Male flowers forming a spike.

Cal. *Catkin* oblong, tiled, consisting of *Scales*, each including a single floret, spear-shaped, acute, concave, permanent.

Bloss. none.

Stam. *Filaments* 3, bristle-shaped, upright, longer than the inclosing scale. *Anthers* upright, long, strap-shaped.

Female flowers the same, but sometimes on distinct plants.

Cal. *Catkin* as above.

Bloss. *Petals none.*

Nectary inflated, oblong egg-shaped, with 2 or 3 teeth at the end, contracted towards the upper part, mouth open, permanent.

Pist. *Germen* 3-cornered, within the nectary. *Style* simple. *Summits* 3 or 2, awl-shaped, bent inwards, long, tapering to a point, downy.

S. Vess. none. The nectary enlarging contains the seed.

Seed single, egg-shaped, but pointed, 3-cornered, one of the angles generally smaller.

Obs. In some species the male and female florets are in separate spikes, though on the same plant. Linn. In others, on distinct plants, and in others again in the same spike. What in the flowering state Linnæus calls the nectary, in its mature state performs the office of a seed-vessel, and is then called a capsule. It has an open mouth, through which the summits issue from the top of the germen; this mouth sometimes closes, sometimes remains open; in some species it is entire, in others it has 2 pointed teeth at the end.

TY'PHA. *Tourn.* 301. *Gærtn.* 2.

Male flowers numerous, forming a catkin at the end of the straw.

Cal. *Catkin* common, cylindrical, very closely set, consisting of *Individual Calyxes* with 3 leaves, bristle-shaped.

Bloss. none.

Stam. *Filaments* 3, hair-like, as long as the calyx. *Anthers* oblong, pendent.

Female flowers numerous, set exceedingly close, forming a catkin, which surrounds the stem.

Cal. none.

Bloss. none.

Pist. *Germen* sitting on a little bristle, egg-shaped. *Style* awl-shaped. *Summit* hair-like, permanent.

S. Vess. none. *Fruit* very numerous, and forming a cylinder.

Seed single, egg-shaped, furnished with a style sitting on a bristle. *Down* hair-like, fixed to the bristle which supports the seed, from its base to its middle, as long as the pistil.

SPARGA'NIUM. *Tourn.* 302. *Gærtn.* 19.

Male flowers numerous, collected into a little head.

Cal. *Common Catkin* roundish, tiled very closely on every side, consisting of *Proper Cups* with 3 leaves, strap-shaped, deciduous.

Bloss. none.

Stam. *Filaments* 3, hair-like, as long as the cup. *Anthers* oblong.

Female flowers.

Cal. as above. *Common Receptacle* roundish.

Bloss. none.

Pist. *Germen* egg-shaped, ending in a short awl-shaped *Style*. *Summits* 1 or 2, acute, channelled, permanent.

S. Vess. *Drupa* juiceless, turban-shaped, but terminated by a point, angular beneath.

Seed a *Nut*, hard as bone, oblong, egg-shaped, angular.

Obs. The seed in some with 1 cell, in others with 2 Tourn. quoted by Linnæus.

DIGYNIA.

PHAL'ARIS. Pl. II. f. 10. *Gærtn.* 80.

Cal. double, containing 1 flower.

Outer Husk 2 valves, compressed. Valves boat-shaped, compressed, keeled, acute, nearly equal: edges straight, parallel, approaching.

Inner, 2 valves. Valves spear-shaped, acute, small, pubescent, resting against the back of the blossom at the base.

Bloss. 2 valves, smaller than the calyx. *Valves* oblong, concave, sharp; the innermost the smallest.

Nectary 2-leaved; leafits spear-shaped, tapering to a point, transparent, greenish, bulging at the base.

Stam. *Filaments* 3, hair-like. *Anthers* oblong, forked.

Pist. *Germen* egg-shaped. *Styles* 2, hair-like, united at the base. *Summits* woolly.

S. Vess. none. The blossom grows to the seed like a crust, and does not open.

Seed single, egg-oblong, tapering to a point, smooth.

Obs. In our Phalaris arenaria (the Phleum arenarium of Linnæus) the calyx is single, but not being lopped, or furnished with 2 spit-points, accords less with the genus Phleum than with that of Phalaris.

PA'NICUM. Pl. II. f. 7. *Gærtn.* 1.

Cal. *Husk* 2 valves, containing 2 florets. *Valves* nearly egg-shaped, fibrous, the outer rather lower, very small. One floret hermaphrodite, the other either male or neutral.

Bloss. of the hermaphrodite floret, a *Husk* of 2 valves; valves nearly egg-shaped, gristly; *Outer* convex, its edges embracing the *Inner Valve*, which is smaller and flatter.

Neutral or *Male* floret, a *Husk* of 2 valves, the *Outer* (placed in the bosom of the smaller valve of the calyx) flattish, fibrous; *Inner* valve membranaceous, flat, its edges turned inwards, generally small.

Nectary 2-leaved, very small, bulging. In the neutral floret none.

Stam. *Filaments* 3, hair-like. *Anthers* oblong.

Pist. *Germen* roundish. *Styles* 2, hair-like. *Summits* feathered.

S. Vess. none; the blossom adheres to the seed, and does not open.

Seed single, covered, roundish, but flatted on one side.

Obs. Overlooking the inner valve of the neutral floret, the outer seems to belong to the calyx, so that most Botanists have mentioned the calyx as having 3 valves, one of them very small.—*Valves* generally 4. The 1*st* or *outermost*; the 2*nd* opposite to the outermost, and covering the outer valve of the blossom; the *3rd* opposite and similar to the 2d; the *4th* between the 3d and the inner valve of the blossom, flat, membranaceous, and generally smaller than the 1st.—Mr. Curtis has seen and figured it in the P. Crusgalli, f. 5. 6.; but calls it a membrane between the calyx and bloss. It exists in the *P. glaucum, viride, miliaceum, capillare, patens,* and even in the *sanguinale,* where, still observing its proportion to the outer valve, it is with difficulty discovered. In the *patens,* with the assistance of the 3rd valve, it performs the office of a blossom, inclosing 3 naked stamens. In the *P. Dactylon* there are only 2. St.

PHLE'UM. Pl. II. f. 9. *Gærtn.* 1.

CAL. *Husk* 2 valves, including a single floret; oblong, strap-shaped, compressed; open at the end, and furnished with 2 dagger points. *Valves* equal, straight, concave, compressed; one embracing the other; lopped; with a sharp point at the end of the keel.

BLOSS. 2 valves, shorter than the calyx; *Outer Valve* embracing the *Inner Valve,* which is smaller.

Nectary 2 leaves; leafits egg-shaped, concave, acute (Schreb.)

STAM. *Filaments* 3; hair-like; longer than the calyx. *Anthers* oblong, forked at each end.

PIST. *Germen* roundish. *Styles* 2; hair-like; reflected. *Summits* feathered.

S. VESS. none. The calyx and the bloss. inclose the seed.

SEED single; roundish.

OBS. In Phleum *arenarium* the florets are egg-spear-shaped and the calyx not lopped, on which account it is now referred to the genus Phalaris.

ALOPECU'RUS. Pl. II. f. 8. *Gærtn.* 1.

CAL. *Husk* 2 valves, containing 1 floret. *Valves* egg-spear-shaped, compressed, equal, united at the base.

BLOSS. 1 valve, egg-spear-shaped, concave, rather shorter than the calyx, its edges united at the base. *Awn* twice as long as the blossom, jointed, fixed on the back of the bloss. towards its base.

Nectary none.

STAM. *Filaments* 3, hair-like, flattish at the bottom, longer than the calyx. *Anthers* forked at each end.

Pist. *Germen* roundish. *Styles* 2, hair-like, united at the base, longer than the calyx. *Summits* woolly.
S. Vess. none; the blossom inclosing the seed.
Seed egg-shaped, covered.

Obs. In Alop. *agrestis* the calyx is of one piece, divided rather more than half way down. Alop. *monspeliensis* and *paniceus* have 2-valved blossoms.

MI'LIUM. Pl. II. f. 11. *Tourn.* 298.

Cal. *Husk* 2 valves inclosing a single floret. *Valves* egg-shaped, tapering to a point, nearly equal.
Bloss. 2 valves, smaller than the calyx. *Valves* egg-shaped; 1 smaller.
Nectary 2 egg-shaped blunt leafits, bulging at the base. (Schreb.)
Stam. *Filaments* 3, hair-like, very short. *Anthers* oblong.
Pist. *Germen* roundish. *Styles* 2; hair-like. *Summits* pencil-shaped.
S. Vess. The blossom incloses the seed, which is very smooth.
Seed single, covered, roundish.

Obs. Blossom in the M. *effusum* nearly as long as the calyx. St.

AGRO'STIS. Pl. II. f. 12.

Cal. *Husk* 2 valves, inclosing 1 floret, tapering to a point, somewhat smaller than the blossom.
Bloss. 2 valves tapering to a point, *one Valve* larger, bulging at the base. (Schreb.)
Nectary 2 acute leafits.
Stam. *Filaments* three; hair-like; longer than the bloss. *Anthers* forked.
Pist. *Germen* roundish. *Styles* 2; reflected, woolly. *Summits* set lengthwise with stiff hairs.
S. Vess. The blossom adheres to the seed without opening.
Seed single; cylindrical, but tapering towards each end.

Obs. Scopoli says the Agr. *capillaris* has only 1 petal: but with us it has 2, though the smaller one, from its minuteness, might easily be overlooked. In all our Species the calyx is longer than the blossom.

HOL'CUS. Pl. II. f. 30.

Hermaphrodite florets, sitting.

CAL. *Husk* of 2 valves, nearly egg-shaped, blunt, leather-like, awnless, containing 1 floret. *Valves*, outer one large, concave, with about 3 teeth at the point, embracing the *inner* valve, which is oblong, the edges rolled in.

BLOSS. *Husk* 2 valves, delicate, woolly, smaller than the calyx. *Outer* valve smaller, placed within the inner valve of the calyx, mostly cloven, awned. *Awn* growing out of the cleft, longer or shorter, jointed, twisted; sometimes absent.

Nectary of 3 leafits, 2 of them gristly, lopped; the third opposite, egg or spear-shaped, woolly.

STAM. *Filaments* 3, hair-like, very delicate. *Anthers* oblong, cloven.

PIST. *Germen* egg-shaped. *Styles* 2, hair-like, diverging. *Summits* oblong, downy.

S. VESS. none. The husks of the blossom and of the calyx inclose the seed.

SEED solitary, egg-shaped, covered, easily shedding, armed with the awn of the blossom.

Male florets smaller, on foot-stalks, solitary or in pairs, standing by each hermaphrodite floret.

CAL. *Husk* 2 valves. *Valves* egg-spear-shaped, rather acute, chaff-like, awnless. *Outer* valve concave, embracing the *inner*, which is narrower.

BLOSS. *Husk* 2 valves, smaller, delicate. *Outer* valve within the inner valve of the calyx, shorter, with 2 teeth, awnless. *Inner* valve with its edges turned in.

Nectary as above.

STAM. *Filaments* 3, as above.

PIST. *Germen* small, angular, barren. *Styles* 2, like bristles. *Summits* none.

OBS. In the Holcus lanatus, the blossom of the male flower only is awned, and in the H. mollis, both florets are hermaphrodite, the upper one only awned.

A'IRA. Pl. II. fig. 15. *Gærtn.* 1.

CAL. *Husk* 2 valves, containing 2 florets. *Valves* egg-spear-shaped, equal, acute.

BLOSS. 2 valves, resembling those of the calyx. No rudiment of a flower betwixt the florets.

Nectary 2 leafits, acute, bulging at the base. (Schreb.)

STAM. *Filaments* 3, hair-like, as long as the blossom. *Anthers* oblong, forked at each end.

PIST. *Germen* egg-shaped. *Styles* 2, like bristles, expanding. *Summits* pubescent.

S. VESS. none. The blossom incloses and adheres to the seed.

SEED nearly egg-shaped, covered.

OBS. Florets from 2 to 3 in each calyx. (Reich.) The species with awns have the structure of Avena, those without, that of Poa, so that this may be considered as an artificial genus. ST.

ME'LICA. Pl. II. fig. 16. *Gærtn.* 80.

CAL. *Husk* 2 valves, containing 2 florets. *Valves* egg-shaped, concave, nearly equal.

BLOSS. 2 valves. *Valves* egg-shaped, awnless, one concave, the other flat and smaller. Betwixt the 2 florets there is a small turban-shaped substance standing on a pedicle.

Nectary 1 leaf, fleshy, horizontal, surrounding the germen.

STAM. *Filaments* 3, hair-like, as long as the blossom, thicker, and united at the base. *Anthers* oblong, forked at each end.

PIST. *Germen* inversely egg-turban-shaped. *Styles* 2, like bristles, expanding, naked at the base. *Summits* oblong, woolly.

S. VESS. none, the blossom incloses the seed until it ripens.

SEED single, egg-shaped, furrowed on one side.

OBS. The *rudiment* of a third floret standing upon a little fruit-stalk betwixt the other two florets, gives the essential character of this genus. It consists of two rudiments, or florets, lopped, alternate. The husks rolled spirally inwards, and pellucid. LINN.—To this may be added, the union of the stamens at the base, and the nectary of 1 leaf. (Schreb.) When there is only one floret in each calyx, the rudiment is placed between the inner valve of the calyx and the blossom.

SESLE'RIA. (SCOP. ARDUIN. ADANSON. HALL.) *Jacq. ic.* i. Cynosurus.

CAL. *Involucrum*, 2 leaves at the bottom of the spike or bunch. *Husk* 2 valves, containing 1, 2, or 3 florets. *Valves* egg-shaped, taper pointed, nearly equal.

BLOSS. *Valves* 2, oblong, compressed, about the length of the calyx; the *outer* concave, embracing the inner, toothed at the end, the keel running out into a short awn; *inner* flat with the edges folded in, cloven at the end.

STAM. *Filaments* 3, hair-like, longer than the blossom. *Anthers* oblong.

PIST. of the length of the filaments. *Germen* inversely egg-shaped, hairy. *Styles* 2, bristle-shaped, upright. *Summits* pubescent.

S. VESS. The blossom inclosing the seed.

SEED single, hairy.

OBS. The above descriptions were made from a collective view of the Sesleria sphærocephala. Arduin. spec. ii. t.17. Hall. ap. Scheuch. app. ii. n. 30. and the Sesl. cærulea. ST.

PO'A. Pl. II. fig. 18.

CAL. *Husk* 2 valves, awnless; containing several florets pointing from 2 opposite lines, and collected into an oblong egg-shaped spike. *Valves* egg-shaped, tapering to a point.

BLOSS. 2 valves. *Valves* egg-shaped, rather acute, concave, compressed, somewhat longer than the calyx, skinny at the edges.

Nectary 2 leaves; leafits acute or ragged, bulging, at the base. (Schreb.)

STAM. *Filaments* 3, hair-like. *Anthers* forked at each end.

PIST. *Germen* roundish. *Style* 2, bent back, woolly. *Summits* like the styles.

S. VESS. The blossom adheres to the seed without opening.

SEED single, oblong, compressed, tapering at each end, covered by the blossom.

OBS. Different species vary much in the number of florets in each calyx, viz. from 2 to 10, or more, and even in the same species the number is not very constant.

BRI'ZA. Pl. II. fig. 17. *Gærtn.* 1.

CAL. *Husk* 2 valves, expanding, containing several florets pointing from two opposite lines, collected into a heart-shaped spiket. *Valves* blunt, heart-shaped, concave, equal.

Bloss. 2 valves. *Lower Valve* the size and figure of the calyx. *Superior Valve* small, flat, roundish, closing the hollow of the other.

Nectary 2 strap-shaped leafits, a little scollóped. (Schreb.)

Stam. *Filaments* 3, hair-like. *Anthers* oblong.

Pist. *Germen* roundish. *Styles* 2, hair-like, bent back. *Summits* feather-like.

S. Vess. none. The blossom unchanged, contains the seed until it is ripe.

Seed single, very small, roundish, compressed.

DAC'TYLIS. Pl. II. f. 13.

Cal. *Husk* 2 valves, containing many florets collected into an egg-oblong spiket. *Valves* concave, keeled, convex, broader, and half egg-shaped on one side, narrower on the other; *inner* valve larger.

Bloss. 2 valves. *Lower* valve large, concave, acute, pointed or awned; *inner* valve spear-shaped, acute, cloven, scarcely shorter than the other.

Nectaries 2, spear-shaped, tapering to a point, bulging at the base.

Stam. *Filaments* 3, hair-like, longer than the blossom. *Anthers* oblong, forked at each end.

Pist. *Germen* egg-shaped. *Styles* 2, expanding. *Summits* feather-like.

S. Vess. none. The blossom closes upon the seed until it is ripe.

Seed single, oblong, furrowed on one side.

Obs. In some species there is only 1 floret in each calyx, in others 3, 4, or more.

CYNOSU'RUS. Pl. II. f. 28. *Gærtn.* 1.

Cal. *Common Receptacle* unilateral, often leafy. *Involucrum* (sometimes) of 1 leaf, lateral. *Husk* 2 valves, containing several florets. *Valves* strap-shaped, equal, tapering to a point.

Bloss. 2 valves; *outer* concave, longer; *inner* flat, awnless.

Nectary 2 egg-shaped acute leafits, bulging at the base. (Schreb.)

Stam. *Filaments* 3, hair-like. *Anthers* oblong.

Pist. *Germen* turban-shaped. *Styles* 2, woolly, reflected. *Summits* simple.

S. Vess. none. The blossom closely wrapping round the seed, and not opening.

Seed single, oblong, tapering at each end.

Obs. *Involucrum* in most species with winged clefts, or like a comb. Linn.—The number of florets is variable. (Reich.)

FESTU'CA. Pl. II. f. 19.

Cal. *Husk* 2 valves, upright, containing several florets collected into a slender spiket. *Valves* awl-shaped, tapering. *Inferior Valve* the smallest.

Bloss. 2 valves. *Lower* and larger valve the figure of the calyx, but larger, roundish, tapering, ending in an acute point.

Nectary 2 leaves, leafits egg-spear-shaped, acute, bulging at the base; sometimes of 1 leaf, which is plano-concave, horizontal, notched at the end. (Schreb.)

Stam. *Filaments* 3, hair-like, shorter than the blossom. *Anthers* oblong.

Pist. *Germen* turban-shaped. *Styles* 2, short, reflected. *Summits* simple.

S. Vess. none, the blossom closely invelopes the seed, and does not open again.

Seed single, slender, oblong, very acute at each end, marked with a longitudinal furrow.

Obs. In *Festuca* the outer valve of the blossom gradually narrows into an awn, in *Bromus* and *Triticum*, the awn is inserted as it were, below the point of the valve, or the edge of the valve swells out into a thin membrane on each side of the base of the awn. In *Festuca*, the awn is an extension of the whole valve, in *Bromus* and *Triticum*, only of the keel or mid-rib, as in *Avena*. St.

BRO'MUS. Pl. II. f. 20.

Cal. *Husk* 2 valves, expanding, containing several florets collected into a spiket. *Valves* oblong-egg-shaped, taper, awnless; the *Inferior Valve* smaller.

Bloss. 2 valves. The *Inferior Valve* large, the size and figure of the calyx; concave, blunt, cloven, sending out a straight *Awn* from beneath the end. The *Superior Valve* spear-shaped, small, awn-less.

Nectary 2-leaved; *leafits* egg-shaped, acute, bulging at the base. (Schreb.)

Stam. *Filaments* 3, hair-like, shorter than the blossom. *Anthers* oblong.

Pist. *Germen* turban-shaped, ending in 2 leafits, egg-shaped, delicate, greenish and transparent, notched at the end, upright. *Styles* 2, short, reflected, woolly. *Summits* simple.

S. Vess. The blossom shuts close upon, and adheres to the seed.

Seed single, oblong, covered, convex on one side, furrowed on the other.

STI'PA. Pl. II. f. 14.

Cal. *Husk* 2 valves, tapering to a point, flexible, inclosing 1 floret.

Bloss. 2 valves. *Outer Valve*, its point terminated by a very long, straight, twisted awn, jointed at the base. *Inner Valve* strap-shaped, without an awn, as long as the outer valve.

Nectary 2-leaved; leafits strap-spear-shaped, membranaceous, bulging at the base. (Schreb.)

Stam. *Filaments* 3, hair-like. *Anthers* strap-shaped.

Pist. *Germen* oblong. *Styles* 2, hairy, united at the base. *Summits* downy.

S. Vess. The husk adhering.

Seed single, oblong, covered.

AVE'NA. Pl. II. f. 21. *Tourn.* 297.

Cal. *Husk* 2 valves, most frequently containing several florets loosely collected. *Valves* large, loose, spear-shaped, bellying, acute, awnless.

Bloss. 2 valves. *Inferior Valve* the size of the calyx, but harder, somewhat cylindrical, bellying, tapering to a point at each end, sending out from its back an *Awn*, spirally twisted, and bent back as if jointed.

Nectary 2-leaved; leafits spear-shaped, bulging at the base. (Schreb.)

Stam. *Filaments* 3, hair-like. *Anthers* oblong, forked at each end.

Pist. *Germen* blunt. *Styles* 2, reflected, hairy. *Summits* simple.

S. VESS. The *Blossom* shuts close upon, and adheres to the seed without opening again.

SEED single, slender, oblong, tapering to a point at each end, marked with a furrow lengthwise.

OBS. The *Awn* proceeding from the back of the blossom and being twisted and jointed, constitutes the essential character of this genus. LINN.

LAGU'RUS. Pl. II. f. 32. *Gærtn.* 1.

CAL. *Husk* 1-flowered, 2-valved. *Valves* long, strap-shaped, open, very slender, each ending in a downy awn.

BLOSS. 2-valved, stronger than the calyx. *Outer* valve longer, ending in 2 small straight awns. *Inner* valve small, tapering to a point. *Awn* from the middle of the back of the outer valve of the blossom, twisted and bent.

Nectary 2-leaved, *leafits* spear-shaped, blunt, bulging at the base.

STAM. *Filaments* 3, hair-like. *Anthers* oblong.

PIST. *Germen* turban-shaped. *Styles* 2, bristle-shaped, woolly. *Summits* simple.

S. VESS. none. The blossom adheres to the seed.

SEED single, oblong, covered, awned.

ARUN'DO. Pl. II. fig. 22.

CAL. *Husk* 2 upright valves, containing 1 or more florets. *Valves* oblong, tapering to a point, awnless. One *Valve* shorter.

BLOSS. 2 valves. *Valves* as long as the calyx, oblong, tapering to a point, with soft down rising from the base, and nearly as long as the blossom.

Nectary 2-leaved, very minute. (Schreb.)

STAM. *Filaments* 3, hair-like. *Anthers* forked at each end.

PIST. *Germen* oblong. *Styles* 2, hair-like, reflected, woolly. *Summits* simple.

S. VESS. The blossom adheres to the seed without opening.

SEED single, oblong, tapering to a point at each end, furnished with long down at the base.

LO'LIUM. Pl. II. f. 27.

Cal. Common *Receptacle* lengthened into a spike. The florets pointing from 2 opposite lines, and each pressed close to a bend in the straw.

Husk 1 valve, awl-shaped, permanent; standing opposite to a bend in the receptacle.

Bloss. 2 valves. *Inferior Valve* narrow, spear-shaped, rolled inwards, tapering to a point, as long as the calyx. *Superior Valve* shorter, more blunt, strap-shaped, concave on the upper part.

Nectary 2-leaved, leafits egg-shaped, blunt bulging at the base. (Schreb.)

Stam. *Filaments* 3, hair-like, shorter than the blossom. *Anthers* oblong.

Pist. *Germen* turban-shaped. *Styles* 2, hair-like, reflected. *Summits* downy.

S. Vess. none. The blossom encloses the seed until it is ripe.

Seed single, oblong, compressed, convex on one side, flat and furrowed on the other.

Obs. The angles in the spike-stalk lying in the same plane with the spikets of florets, supply the defect of inner valves to the calyx. Linn. But sometimes the calyx has a minute inner valve, as in the Lolium temulentum.

ROTTBOL'LIA. Pl. II. f. 3. (Linn. fil.)

Common Receptacle a long jointed spike-stalk, in a cylindrical spike; the joints alternately hollowed, and set with florets of 2 kinds; *one* with a calyx of 1 valve, hermaphrodite, sitting on the thickened projection of the receptacle; the *other* 2-valved; one on each side of the former, but rather lower, and alternating with it. These are something smaller, and are either hermaphrodites or females, though in some species they are only of one of these 2 kinds.

Hermaphrodites, of 1 valve.

Cal. *Husk* 1 valve, including 1 floret. *Valve* gristly, egg-oblong, lopped at the base, often notched at the end, scored, closing the hollow in the spike-stalk joint like a cover; the hollow serving the purpose of another valve.

BLOSS. *Husk* 2 valves, parallel to that of the calyx, and shorter. *Valves* spear-shaped, acute, concave, membranaceous, transparent and greenish. *Outer* valve longer, its edges turned inwards.

Nectary 1-leaved, spear-shaped, blunt, membranaceous, transparent and greenish, longer than the *germen.*

STAM. *Filaments* 3, hair-like. *Anthers* oblong, cloven at each end.

PIST. *Germen* oblong. *Styles* 2, thread-shaped. *Summits* oblong, downy, expanding, protruding.

S. VESS. none. The valve of the calyx confines the seed in the hollow of the spike-stalk, until the latter separates at the joints.

SEED single, oblong.

Hermaphrodite florets with 2 husks.

CAL. *Husk* 2 valves, containing 1 floret, placed transversely. *Valves* gristly, oblong, sharp-pointed, scored; *outer* valve somewhat shorter; with a short awn.

BLOSS. *Husk* 2-valved, placed transversely. *Valves* spear-shaped, membranaceous, shorter than the calyx; *outer* concave, longer; *inner* edges rolled inwards.

Nectary as above, or else of 2 spear-shaped leafits, tapering to a point.

STAM. as above.

PIST. *Germen* oblong, (or egg-shaped.) *Styles* 2, hair-like. *Summits* as above.

S. VESS. none. The calyx and blossom protect the seed, which is fixed to the spike-stalk, until it separate at the joints.

SEED single, egg-shaped, or oblong.

OBS. The R. *incurvata* has all the florets with 2 husks, and the nectary of 2 leafits. SCHREB.

E'LYMUS. Pl. II. f. 26.

CAL. Common *Receptacle* lengthened into a spike.

Husk 4 leaves, pointing from two opposite lines, 2 of the leaves, which are awl-shaped, belonging to each little spike.

BLOSS. 2 valves. *Outer valve* large, tapering to a point, furnished with an awn. *Inner valve* flat.

Nectary 2-leaved, *leafits* oblong, acute, fringed. (Schreb.)

STAM. *Filaments* 3; hair-like, very short. *Anthers* oblong, cloven at the base.

PIST. *Germen* turban-shaped. *Styles* 2, straddling, hairy, bent inwards. *Summits* simple.

S. VESS. none. The blossom incloses the seed.

SEED single, strap-shaped, convex on one side, covered.

OBS. The calyx may be considered as a 2-leaved husk, and 2 of these husks growing together.

HOR'DEUM. Pl. II. f. 25. *Tourn.* 295.

Common Receptacle lengthened into a spike.

CAL. *Husk* 6 leaves, containing 3 florets. *Florets* sitting. *Leaves* strap-shaped, tapering to a point, distant, in pairs.

BLOSS. 2 valves. *Lower Valve* longer than the calyx, bellying, angular, egg-shaped, but pointed, ending in a long awn. *Inner Valve* spear-shaped, flat, smaller.

Nectary 2-leaved; *leafits* egg-shaped, acute, fringed. (Schreb.) The length of the germen. (ST.)

STAM. *Filaments* 3, hair-like, shorter than the blossom. *Anthers* oblong.

PIST. *Germen* egg-turban-shaped. *Styles* 2, woolly, reflected. *Summits* the same.

S. VESS. none. The blossom grows round the seed without opening.

SEED single, oblong, bellying, angular, tapering at each end, furrowed on one side.

OBS. In some species all the 3 florets that grow together are fertile, and have both stamens and pistils; but in others, the *middle* floret alone is fertile, and furnished with stamens and pistils; the *lateral* florets having only stamens. LINN.

TRI'TICUM. Pl. II. f. 24. *Tourn.* 292, 293. *Gærtn.* 81.

CAL. *Common Receptacle* lengthened into a spike. *Husk* 2 valves, containing about 3 florets. *Valves* egg-shaped, bluntish, concave.

BLOSS. 2 valves, nearly equal, the size of the calyx. *Outer Valve* bellying, blunt, but pointed. *Inner Valve* flat.

Nectary 2-leaved; *leafits* acute, bulging at the base. (Schreb.)

STAM. *Filaments* 3, hair-like. *Anthers* oblong, forked at each end.

PIST. *Germen* turban-shaped. *Styles* 2, hair-like, reflected. *Summits* feather-like.

S. Vess. none. The blossom contains the seed until it is ripe.

Seed single, egg-oblong, blunt at each end, convex on one side, furrowed on the other.

Obs. The *outer valve* of the blossom in some species is furnished with an awn; in others not. The *middle* floret is frequently male. Linn.—The disposition of the spikets constitutes the only difference between this genus and Bromus. Scop.

TRIGYNIA.

AMARANTHUS. *Tourn.* 118. H. I. K. L.

Male flowers on the same plant with the female ones.

Cal. *Cup,* leaves 5 or 3, upright, coloured, permanent, spear-shaped, acute.

Bloss. none; unless the calyx be considered as such.

Stam. *Filaments* 5 or 3, hair-like, upright, but standing rather open, as long as the cup. *Anthers* oblong, turning about.

Female flowers in the same bunch with the others.

Cal. *Cup* the same as the other.

Bloss. none.

Pist. *Germen* egg-shaped. *Styles* 3, short, awl-shaped. *Summits* simple, permanent.

S. Vess. *Capsule* egg-shaped, somewhat compressed, as is also the cup; of the size of the cup which contains it, and coloured like that, 3-beaked, cut round, 1-celled.

Seed single, globular, compressed, large.

Obs. There is only one species native with us, and that has but 3 stamens in a flower.

MONTIA. *Mich.* 13.

Cal. *Cup* 2 leaves; *leafits* egg-shaped, concave, blunt, upright, permanent.

Bloss. 1 petal, with 5 divisions; the 3 alternate segments smaller, and supporting the stamens.

Stam. *Filaments* 3, hair-like, as long as the blossom, into which they are inserted. *Anthers* small.

Pist. *Germen* turban-shaped. *Styles* 3, woolly, expanding. *Summits* simple.

S. Vess. *Capsule* turban-shaped, blunt, covered, of 1 cell and 3 valves.

Seeds 3, roundish.

Obs. The cup has frequently 3 leaves, and then there are often 5 stamens. Linn.

TILLÆ'A. *Rose* 2. 2. *Gærtn.* 112.

CAL. *Cup* with 3 divisions, flat. *Segments* egg-shaped, large. (*Segments* pointed, concave, approaching. ROSE.)

BLOSS. *Petals* 3, egg-shaped, pointed, flat, mostly smaller than the cup. (*Petals* concave. ROSE.)

STAM. *Filaments* 3, simple, shorter than the blossom. *Anthers* small.

PIST. *Germens* 3. *Styles* simple. *Summits* blunt.

S. VESS. *Capsules* 3, oblong, tapering, reflected, as long as the blossom, opening lengthwise upwards.

SEEDS 2, egg-shaped.

OBS. The T. *muscosa* being the only species yet found with us, and its structure leading us to this class, it is placed here; but the three foreign species having 4 stamens, 4 pistils, and 4 capsules, the genus is properly arranged by Linnæus, in the class Tetrandria, order Tetragynia. The fig. of Gærtner referred to above, and also by Schreber, is the T. *muscosa* in its cultivated state, when it bears flowers with 5 stamens, 5 pistils, and 5 capsules.

HOLO'STEUM. *E. bot.* 27.

CAL. *Cup* 5 leaves. *Leafits* egg-shaped, permanent.

BLOSS. *Petals* 5, deeply divided, blunt, equal.

STAM. *Filaments* 3, hair-like, shorter than the blossom. *Anthers* roundish.

PIST. *Germen* roundish. *Styles* 3, hair-like. *Summits* bluntish.

S. VESS. *Capsule* 1 cell, rather cylindrical, opening at the top.

SEEDS several, roundish.

OBS. H. *umbellatum* has petals with 2 or 3 teeth; stamens 3 or 5; styles 3 or 4; capsule with 6 valves at its apex. (Schreb.)

POLYCAR'PON.

CAL. *Cup* 5 leaves. *Leafits* egg-shaped, concave, keeled, ending in a sharp point, permanent.

BLOSS. *Petals* 5, very short, egg-shaped, notched at the end, alternate, permanent.

STAM. *Filaments* 3, thread-shaped, half the length of the calyx. *Anthers* roundish.

PIST. *Germen* egg-shaped. *Styles* 3, very short. *Summits* blunt.

S. VESS. *Capsule* egg-shaped, of 1 cell and 3 valves.

SEEDS many, egg-shaped.

ENNEAGYNIA.

EM'PETRUM. *Tourn.* 421.

Male flowers.

Cal. *Cup* with 3 divisions. *Segments* egg-shaped, permanent.

Bloss. *Petals* 3, oblong-egg-shaped, narrowest at the base, larger than the cup, shrivelling.

Stam. *Filaments* 3, hair-like, very long, hanging down. *Anthers* upright, short, cloven.

Male flowers.

Cal. *Cup* as above.

Bloss. *Petals* as above.

Pist. *Germen* depressed. *Style* hardly any. *Summits* 9, bent back, but expanding.

S. Vess. *Berry* round and flat, depressed, larger than the cup, with 1 cell.

Seeds 9, placed in a jointed circle, bulging on one side, angular on the other.

Obs. Sometimes, though very rarely, flowers have been found containing both stamens and pistils.

CLASS IV.

TETRANDRIA.

THE stamens in this class are 4, and all of the same length; whereas in the class Didynamia, which is likewise composed of flowers of 4 stamens, the stamens are unequal in length, 2 of them being long, and 2 short.

TETRANDRIA (4 Stamens.)

Monogynia (1 Pistil.)

Dipsacus.
Scabiosa.
Eriocaulon.
Sherardia.
Asperula.
Galium.
Rubia.
Littorella.
Plantago.
Centunculus.
Sanguisorba.
Epimedium.
Cornus.
Parietaria.
Urtica.
Viscum.
Hippophae.
Alchemilla.

Digynia (2 Pistils.)

Buffonia.
Betula.
Myrica.
Cuscuta.

Trigynia (3 Pistils.)

Buxus.

Tetragynia (4 Pistils.)

Ilex.
Potamogeton.
Ruppia.
Sagina.

TETRANDRIA.

MONOGYNIA.

DIPSA'CUS. *Tourn.* 265. *Gærtn.* 86.

Cal. *Common Cup* of many leaves containing many florets. *Leafits* longer than the florets, flexible, permanent. *Proper Cup* superior, scarcely perceptible.

Bloss. *general,* regular. *Individuals* of 1 petal, tubular. *Border* with 4 clefts, upright; the outer *Segment* larger and more acute.

Stam. *Filaments* 4, hair-like, longer than the blossom. *Anthers* fixed sidewise.

Pist. *Germen* beneath. *Style* thread-shaped, as long as the blossom. *Summit* simple.

S. Vess. none.

Seed solitary, resembling a square pillar, crowned with the entire margin of the proper cup. *Receptacle* common, conical. *Florets* separated by long chaff.

SCABIO'SA. *Tourn.* 263. 264. *Gærtn.* 86.

Cal. *Common Cup* of many leaves, expanding, containing many florets. The *Leafits* sit upon, and surround the receptacle in several rows, the inner ones of which become gradually smaller.

Proper Cup double, superior.

Outer Cup shorter, membranaceous, plaited, permanent.

Inner Cup with 5 divisions. *Segments* awl-shaped, but very slender.

Bloss. *general,* regular, but mostly composed of irregular florets.

Individuals of 1 petal, tubular, with 4 or 5 clefts, equal or unequal.

Stam. *Filaments* 4, between awl and hair-shaped, limber. *Anthers* oblong, fixed sidewise.

Pist. *Germen* beneath, rolled in a proper sheath, like a little cup. *Style* thread-shaped, as long as the blossom. *Summit* blunt, obliquely notched at the end.

S. Vess. none.

Seed solitary, egg-oblong, rolled in a cover, variously crowned by the proper cups.

Receptacle common, convex, chaffy or naked.

Obs. Outer blossoms generally larger and more irregular. Seeds crowned differently in different species. The florets having 4 or 5 clefts, afford a primary specific distinction. Linn.

ERIOCAU'LON. *Phil. Trans.* vol. 59. p. 246. t. 12.

Male and *Female* florets in a terminating hemispherical head; the former in the centre, the latter forming 2 rows in the circumference.

Cal. *common*, scales numerous, roundish, concave membranaceous, black, fringed towards the top.

Male florets, central, numerous.

Cup (proper) 2-leaved; leafits wedge-shaped, concave, fringed.

Bloss. 1 petal, funnel-shaped, mouth 2-lipped, fringed.

Stam. *Filaments* 4, thread-shaped, as long as the blossom. *Anthers* roundish.

Female florets in the circumference.

Cup (proper) 2-leaved; leafits egg-shaped, concave, black, fringed at the top, tapering at the base into a narrow claw.

Bloss. 2-petaled; petals oblong, concave, tapering at the base into narrow claws, fringed at the top and on the back.

Pist. *Germen* roundish, but flatted. *Style* short. *Summits* 2, thread-shaped, long.

S. Vess. *Capsule* roundish, but compressed, 2-celled.

Seeds smooth, 1 in each cell.

Obs. This generic character is taken from the very excellent description of the Eriocaulon, given by Dr. Hope in the 59th vol. of the Philos. Trans. and though it may not apply to the whole genus, yet as the foreign species have not hitherto been sufficiently examined, whatever may be its place in the system hereafter, it was judged proper at present, to insert it where an English botanist would expect to find it. Mr. Hudson has since called it Nasmythia, and given a generic description which corresponds with the above, except in the following particulars. *Filaments* shorter than the blossom. *Female* florets in the circumference very numerous. *Germen* superior, double, *Style* bristle-like, divided. *Seeds* roundish.

SHERAR'DIA. *Gærtn.* 24.

CAL. *Cup* small; with 4 teeth, superior, permanent.
BLOSS. 1 petal, funnel-shaped. *Tube* cylindrical, long. *Border* with 4 divisions. *Segments* flat, acute.
STAM. *Filaments* 4, situated at the top of the tube. *Anthers* simple.
PIST. *Germen* beneath, double, oblong. *Style* thread-shaped, cloven at the top. *Summits* little knobs.
S. VESS. none. *Fruit* oblong, crowned, separable lengthwise into 2 seeds.
SEEDS 2; oblong convex on one side; flat on the other; with 3 sharp points at the top.

OBS. The Sherardia *arvensis* has generally 5 or 6 teeth on the cup.

ASPE'RULA. *Curt.* 249.

CAL. *Cup* small, 4 toothed, superior.
BLOSS. 1 petal, funnel-shaped. *Tube* long, cylindrical. *Border* with 4 divisions, segments oblong, blunt, reflected.
STAM. *Filaments* 4; situated at the top of the tube. *Anthers* simple.
PIST. *Germen* beneath, double, roundish. *Style* thread-shaped, cloven at the top. *Summits* knobbed.
S. VESS. 2 dry globular *berries* adhering together.
SEEDS solitary, roundish, large.

OBS. The distinction between ASPERULA and GALIUM, taken from the length of the tube of the blossom, is sufficiently obvious in their respective extremes, but in some of the former, it becomes so short, that the 2 genera seem to run into one. (Wigg.)

GA'LIUM. *Tourn.* 39. *Gærtn.* 24.

CAL. *Cup* very small, with 4 teeth, superior.
BLOSS. 1 petal, wheel-shaped, with 4 divisions, acute, without a tube.
STAM. *Filaments* 4, awl-shaped, shorter than the bloss. *Anthers* simple.
PIST. *Germen* double. *Style* thread-shaped, cloven half way down, as long as the stamens. *Summits* globular.
S. VESS. 2 dry globular *berries*; united.
SEED solitary, large, kidney-shaped.

Obs. In G. *cruciatum* male flowers are sometimes found, and the number of stamens varies, as likewise do the divisions of the blossom, from 3 to 5.

RU'BIA. *Tourn.* 38.

Cal. *Cup* very small, with 4 teeth, superior.

Bloss. 1 petal, bell-shaped, with 4 divisions, without a tube.

Stam. *Filaments* 4, awl-shaped, shorter than the blossom. *Anthers* simple.

Pist. *Germen* beneath, double. *Style* thread-shaped, cloven at the top. *Summits* knobbed.

S. Vess. 2 smooth *berries*, united.

Seed solitary, roundish, with a hollow dot.

Obs. The blossom has frequently 5 divisions. Linn.

EX'ACUM. *Gærtn.* 114.

Cal. *Cup* 4 leaves; *leafits* egg-shaped, blunt, upright but expanding, permanent.

Bloss. 1 petal, permanent. *Tube* globular, as long as the calyx. *Border* 4 cleft. *Segments* roundish, expanding.

Stam. *Filaments* 4, thread-shaped, fixed to the tube, as long as the border. *Anthers* roundish.

Pist. *Germen* roundish, filling the tube. *Style* thread-shaped, upright, as long as the border. *Summit* a knob.

S. Vess. *Capsule* roundish, compressed, 2-furrowed, 2-celled, as long as the calyx.

Seeds numerous, fixed to the central receptacle.

LITTOREL'LA. *Fl. dan.* 170.

Male flowers.

Cal. *Cup* 4 leaves, upright.

Bloss. *Petal* 1. *Tube* as long as the cup. *Border* with 4 divisions, upright, permanent.

Stam. *Filaments* 4, thread-shaped, very long, inserted into the receptacle. *Anthers* heart-shaped.

Female flowers on the same plant.

Cal. none.

Bloss. *Petal* 1, conical, mouth mostly with 4 clefts, permanent.

PIST. *Germen* oblong. *Style* thread-like, very long. *Summit* acute.

S. VESS. The blossom investing the seed.

SEED. *Nut* of 1 cell.

OBS. It has the flower of the PLANTAGO, but not the fruit. LINN.—Blossom with 3 ill-defined clefts. Syst. pl. and Hudson.

PLANTA'GO. *Tourn.* 48. *Gærtn.* 51.

CAL. *Cup* 4-clefted, very short, upright, permanent.

BLOSS. 1 petal, permanent, shrivelling. *Tube* cylindrical, but somewhat globular. *Border* 4-clefted, reflected. *Segments* egg-shaped, acute.

STAM. *Filaments* 4, hair-like, upright, exceedingly long. *Anthers* rather long, compressed, fixed sidewise.

PIST. *Germen* egg-shaped. *Style* thread-shaped, half as long at the stamens. *Summits* simple.

S. VESS. *Capsule* egg-shaped, with 2 cells, cut round. *Partition* loose.

SEEDS several, oblong.

OBS. The calyx in some species is equal, in others unequal. LINN.

CENTUN'CULUS. *Gærtn.* 50.

CAL. *Cup* with 4 clefts, expanding, permanent. *Segments* acute, spear-shaped, longer than the blossom.

BLOSS. 1 petal. *Tube* somewhat globular. *Border* flat, with 4 clefts. *Segments* nearly egg-shaped.

STAM. *Filaments* 4, nearly as long as the blossom. *Anthers* simple.

PIST. *Germen* roundish, within the tube of the blossom. *Style* thread-shaped, as long as the blossom, permanent. *Summit* simple.

S. VESS. *Capsule* globular, of 1 cell, cut round.

SEEDS several, roundish, very small.

SANGUISOR'BA. *Fl. dan.* 97.

CAL. *Cup* 2 leaves. *Leafits* opposite, very short, shedding.

BLOSS. 1 petal, wheel-shaped, with 4 divisions. *Segments* egg-shaped, blunt, united by the claws.

STAM. *Filaments* 4, broader upwards, as long as the blossom. *Anthers* small, roundish.

Pist. *Germen* 4-cornered, situated between the cup and the blossom. *Style* thread-shaped, very short. *Summit* blunt.

S. Vess. *Capsule* small, with 2 cells.

Seeds small.

Obs. The blossom has sometimes 5 clefts.

EPIME'DIUM. *Tourn.* 117.

Cal. *Cup* 4 leaves. *Leafits* egg-shaped, blunt, concave, expanding, small, placed directly under, not alternating with the petals, shedding.

Bloss. *Petals* 4, egg-shaped, blunt, concave, expanding. *Nectaries* 4, as large as the petals, leaning against them, glass-shaped, rounded at the bottom, fixed to the receptacle by the rim of the mouth.

Stam. *Filaments* 4, awl-shaped, pressing on the style. *Anthers* oblong, upright, 2-celled, 2-valved, opening from the base upwards, the partition loose.

Pist. *Germen* oblong. *Styles* shorter than the germen, as long as the stamens. *Summit* simple.

S. Vess. *Pod* oblong, tapering to a point, 1-celled, 2-valved.

Seeds many, oblong.

COR'NUS. *Tourn.* 410. *Gærtn.* 26.

Cal. *Involucrum* generally 4 leaves, including several florets. *Leafits* egg-shaped, coloured, deciduous, 2 opposite, smaller. *Cup* very small, 4-toothed, superior, deciduous.

Bloss. *Petals* 4, oblong, acute, flat, smaller than the involucrum.

Stam. *Filaments* 4, awl-shaped, upright, longer than the blossom. *Anthers* roundish, fixed sidewise.

Pist. *Germen* beneath, roundish. *Style* thread-shaped, as long as the blossom. *Summit* blunt.

S. Vess. *Drupa* nearly globular, dimpled.

Seed a heart-shaped or oblong nut, with 2 cells.

PARIETA'RIA. *Tourn.* 289.

Two *Hermaphrodite* flowers inclosed within 1 flat involucrum of 6 leaves; the 2 opposite and outer leafits the largest.

Cal. *Cup* 1 leaf with 4 clefts, flat, blunt, the size of half the involucrum.

Bloss. none, unless the cup be considered as such.

Stam. *Filaments* 4, awl-shaped, longer than the cup, bursting it open, permanent. *Anthers* double.

Pist. *Germen* egg-shaped. *Style* thread-shaped, coloured. *Summit* pencil-shaped, with a knob.

S. Vess. none. The *Cup* becoming longer, larger, and bell-shaped, and its segments approaching, closes upon the seed.

Seed single, egg-shaped.

One *Female* flower placed between the other 2, within the same involucrum.

Cal. as above.

Bloss. none.

Pist. as above.

S. Vess. none. *Cup* slender, inclosing the fruit.

Seed as above.

URTI'CA. *Tourn.* 308.

Male flowers.

Cal. *Cup* 4 leaves, circular, concave, blunt.

Bloss. *Petals* none.

Nectary in the centre of the flower, glass-shaped, entire, narrower at bottom, very small.

Stam. *Filaments* 4, awl-shaped, as long as the cup, expanding, 1 placed within each leaf of the cup. *Anthers* with 2 cells.

Female flowers upon the same, or upon a different plant.

Cal. *Cup* with 2 valves, egg-shaped, concave upright, permanent.

Bloss. none.

Pist. *Germen* egg-shaped. *Style* none. *Summit* woolly.

S. Vess. none. *Cup* closing.

Seed single, egg-shaped, compressed, blunt, shining.

VIS'CUM. *Tourn.* 380. *Gærtn.* 27.

Male flowers.

Cal. *Cup* with 4 divisions; *leaves* egg-shaped, equal.

Bloss. none.

Stam. 4. *Filaments* none. *Anthers* oblong, tapering, 1 fixed to each leaf of the cup.

Female flowers mostly growing opposite the other.

Cal. *Cup* 4 leaves, egg-shaped, small, sitting on the germen, deciduous.

Bloss. none.

Pist. *Germen* beneath, oblong, 3-edged, indistinctly crowned with a border with 4 clefts. *Style* none. *Summit* blunt, a little notched.

S. Vess. *Berry* globular, with 1 cell, smooth.

Seed single, inversely heart-shaped, compressed, blunt, fleshy.

HIPPO'PHAE. *Tourn.* 481; *Rhamnoides. Gærtn.* 42.

Male flowers.

Cal. *Cup* 1 leaf, divided into 2 parts, forming 2 valves, but joined at the base. *Segments* circular, blunt, concave, upright, but the points approaching, open at the sides.

Bloss. none.

Stam. *Filaments* 4, very short. *Anthers* oblong, angular, almost as long as the cup.

Female flowers.

Cal. *Cup* 1 leaf, egg-oblong, tubular, club-shaped, cloven at the rim, deciduous.

Bloss. none.

Pist. *Germen* roundish, small. *Style* simple, very short. *Summit* rather thick, oblong, upright, twice as long as the cup.

S. Vess. *Berry* nearly globular, with 1 cell.

Seed single, oblong.

Obs. In H. *Rhamnoides*, an hermaphrodite flower has sometimes been found amongst the male flowers. (Schreb.)

ALCHEMIL'LA. *Tourn.* 289. *Gærtn.* 73.

Cal. *Cup* 1 leaf, tubular, permanent. *Rim* flat, with 8 divisions; every other *Segment* smaller.

Bloss. none.

Stam. *Filaments* 4 awl-shaped, upright, small, standing on the rim of the calyx. *Anthers* roundish.

Pist. *Germen* egg-shaped. *Style* thread-shaped, as long as the stamens, standing on the base of the germen. *Summit* globular.

S. VESS. none. The neck of the cup closes upon the seed, and does not open again.

SEED solitary, oval, compressed.

OBS. The Alchemilla *vulgaris* has sometimes 2 seeds.

DIGYNIA.

BUFFO'NIA.

CAL. *Cup* 4-leaved, upright, permanent. *Leafits* awl-shaped, keeled, membranaceous at the edges.

BLOSS. *Petals* 4, oval, upright, equal, notched at the end, shorter than the calyx.

STAM. *Filaments* 4, equal, as long as the germen. *Anthers* double.

PIST. *Germen* egg-shaped, compressed. *Styles* 2, as long as the stamens. *Summits* simple.

S. VESS. *Capsule* oval, compressed, of 1 cell and 2 valves.

SEEDS 2, oval, compressed, but marked with a little protuberance; convex on one side.

OBS. Lœfling thought he once found 4 stamens, but afterwards altered his opinion. Alstrœmer often found 4. Gerard sometimes 4, sometimes 2, rarely 3. LINN.

BE'TULA. *Tourn.* 360. 359. *Gœrtn.* 90.

Male flowers.

CAL. *Catkin* tiled on every side, limber, cylindrical. *Scales* 3-flowered, with 2 very minute scales, one on each side the larger scale. Three equal florets fixed to the centre of each scale of the calyx.

Cup to each floret, of 1 leaf, small, entire, but with 3 or 4 divisions. *Segments* egg-shaped, blunt.

BLOSS. none.

STAM. *Filaments* 4 (3, or 2) to each floret; very small. *Anthers* roundish.

Female flowers on the same plant.

CAL. *Catkin* cylindrical, roundish, tiled. *Scales* 2-flowered.

BLOSS. none.

PIST. *Germen* to each flower, compressed, very small, 2-seeded. *Styles* 2, like bristles. *Summits* simple.

S. VESS. none; each scale of the catkin protects the seeds of 2 florets.

SEEDS solitary, egg-shaped.

Obs. In Betula *alba*, and B. *nana*, the catkins are cylindrical, the scales 3-forked, and the seeds with a double lateral border. In B. *alnus*, the catkin forms a kind of roundish cone, the scales are circular, and the seeds are angular, not bordered. Linn.

MYRI'CA. *Gærtn.* 39.

Male flowers.

Cal. *Catkin* egg-oblong, tiled on every side, limber, consisting of *Scales* inclosing a single flower, crescent-shaped, tapering to a blunt point, concave.

Proper Cup, none.

Bloss. none.

Stam. *Filaments* 4, (rarely 6) thread-shaped, short, upright. *Anthers* large, double, with cloven lobes.

Female flowers.

Cal. as above.

Bloss. none.

Pist. *Germen* somewhat egg-shaped. *Styles* 2, thread-shaped, longer than the cup. *Summits* simple.

S. Vess. *Berry* of 1 cell.

Seed single.

Obs. In Myrica *Gale*, there are 4 stamens. The berry is dry, or like a leathery crust, compressed at the end, and 3-lobed. Linn.

CUS'CUTA. *Tourn.* 422. *Gærtn.* 62.

Cal. *Cup* 1 leaf, glass-shaped, 4-clefted, blunt, fleshy at the base.

Bloss. 1 petal, egg-shaped, a little longer than the cup. *Mouth* 4-cleft, blunt.

Nectary 4 scales, strap-shaped, cloven at the end, acute, united to the blossom at the base of the stamens.

Stam. *Filaments* 4, awl-shaped, as long as the cup. *Anthers* roundish.

Pist. *Germen* roundish. *Styles* 2, upright, short. *Summits* simple.

S. Vess. fleshy, roundish, 2-celled, cut round.

Seeds in pairs.

Obs. In some species five is the prevailing number in the parts of the flower. Linn.

BUX'US. *Tourn.* 345.

Male flowers projecting from the buds of the tree.

CAL. *Cup* 3 leaves; *leafits* circular, blunt, concave, expanding.

BLOSS. *Petals* 2, circular, concave, resembling the cup, but larger.

STAM. *Filaments* 4, awl-shaped, upright, but expanding, generally longer than the cup. *Anthers* upright, double.

PIST. *Germen* only a rudiment, without style or summit.

Female flowers in the same bud with the others.

CAL. *Cup* 4 leaves; *leafits* circular, blunt, concave, expanding.

BLOSS. *Petals* 3, circular, concave, resembling the cup, but larger.

PIST. *Germen* roundish, with 3 blunt edges, ending in 3 very short permanent *Styles*. *Summits* blunt, rough with hair.

S. VESS. *Capsule* roundish, with 3 beaks and 3 cells, opening elastically in 3 directions.

SEEDS 2, oblong, roundish on one side, flat on the other.

TETRAGYNIA.

I'LEX. *Tourn.* 371; *Aquifolium*.

CAL. *Cup* 4-toothed, very small, permanent.

BLOSS. 1 petal, with 4 divisions, wheel-shaped. *Segments* roundish, concave, expanding, rather large, adhering by the claws.

STAM. *Filaments* 4, awl-shaped, shorter than the blossom. *Anthers* small.

PIST. *Germen* roundish. *Styles* none. *Summits* 4, blunt.

S. VESS. *Berry* roundish, with 4 cells.

SEEDS solitary, hard as bone, oblong, blunt, bellying on one side, angular on the other.

OBS. Great variations take place in the flowers of the Ilex *aquifolium*; sometimes the stamens and pistils are found on distinct plants; sometimes on the same plant, but in different flowers; sometimes again the flowers have 5 stamens; and frequently there are male and female, as well as hermaphrodite flowers, on the same, or on different plants.

POTAMOGE'TON. *Tourn.* 103. *Gærtn.* 84.

Cal. none.

Bloss. *Petals* 4, nearly circular, blunt, concave, upright, furnished with a little claw, deciduous.

Stam. *Filaments* 4, flat, blunt, very short. *Anthers* double, short.

Pist. *Germens* 4, egg-shaped, but tapering to a point. *Style* none. *Summits* blunt.

S. Vess. none.

Seeds 4, roundish, taper pointed, bulging on one side, flatted on the other, and angular.

RUP'PIA. *Gærtn.* 84.

Cal. *Sheath*, hardly any but what is formed by the base of the leaves. *Sheathed Fruit-stalk* awl-shaped, undivided, straight, bending when the fruit ripens, beset with flowers which point in 2 opposite directions. *Cup* none.

Bloss. none.

Stam. *Filaments* none. *Anthers* 4, sitting, equal, somewhat roundish, rather double.

Pist. *Germens* 4 or 5, somewhat egg-shaped, approaching. *Style* none. *Summits* blunt.

S. Vess. none. The seeds are supported upon little footstalks, thread-shaped, and as long as the fruit.

Seeds 4 or 5, egg-shaped, oblique, terminated by a flat circular summit.

SAGI'NA. *Curt.* iii. 27. & 136, & 291.

Cal. *Cup* 4-leaved. *Leafits* egg-shaped, concave, greatly expanded, permanent.

Bloss. *Petals* 4, egg-shaped, blunt, expanding, shorter than the cup.

Stam. *Filaments* 4, hair-like. *Anthers* roundish.

Pist. *Germen* somewhat globular. *Styles* 4, awl-shaped, bent backwards, downy. *Summits* simple.

S. Vess. *Capsule* egg-shaped, straight, with 4 cells and 4 valves.

Seeds numerous, very small, fixed to the receptacle.

Obs. Sagina *procumbens* has flowers with or without petals. S. *apetala* has no petals; and in S. *erecta* the cup leafits are spear-shaped, tapering to a point. (Reich.) The S. *apetala* is not destitute of petals, but they are very minute. St.

CLASS V.

PENTANDRIA.

THE first division of the first ORDER of this class, includes the plants with ROUGH LEAVES; which, Linnæus says, are *mucilaginous*, and *esculent*. Phil. bot. 340. As there is no seed vessel, the cup does not fall off, but remains after the blossom decays, and contains the seeds.

In the second division of this order, those plants which bear berries, and have a blossom composed of one petal, are generally poisonous.

The third division of the SECOND ORDER consists of plants whose flowers are disposed in UMBELS or RUNDLES. These are divided into such as have both a general and a partial INVOLUCRUM, such as have only a partial one, and such as have none at all; but as the involucrums are not very constant, and in some species are apt to fall off, and as the blossoms, stamens, and pistils, are so much alike as to afford but little assistance in the determination of the genera and species, the student is desired to pay particular attention to the seeds, which furnish the most unequivocal generic characters, and often come powerfully in aid of the specific character. On this account, it is necessary to gather some specimens in which the seeds are nearly ripe, and others but just opening into flower.

The Umbelliferous Plants in dry situations are aromatic and carminative; in moist ones, acrid, and sometimes poisonous. The greatest virtues are contained in the seeds and roots. Many of them are eaten at our tables, as the roots of CARROT and PARSNEP, and the leaves of CELERY. The seeds of CORIANDER and CARAWAY are used in confectionary.

PENTANDRIA, (5 Stamens.)

MONOGYNIA. (1 Pistil.)

Myosotis.
Lithospermum.
Anchusa.
Cynoglossum.
Pulmonaria.
Symphytum.
Borago.
Asperugo.
Lycopsis.
Echium.
Primula.
Cyclamen.
Menyanthes.
Hottonia.
Lysimachia.
Anagallis.
Azalea.
Convolvulus.
Polemonium.
Campanula.
Phyteuma.
Lobelia.
Samolus.
Lonicera.
Jasione.
Verbascum.
Datura.
Hyoscyamus.
Atropa.
Solanum.
Chironia.
Rhamnus.
Euonymus.
Viola.
Impatiens.
Ribes.
Hedera.
Illecebrum.
Glaux.
Thesium.
Vinca.

DIGYNIA. (2 Pistils.)

Herniaria.
Chenopodium.
Atriplex.
Humulus.
Beta.
Salsola.
Ulma.
Swertia.
Gentiana.
Xanthium.
Eryngium.
Hydrocotyle.
Sanicula.
Bupleurum.
Echinophora.
Tordylium.
Caucalis.
Daucus.
Bunium.
Conium.
Selinum.
Athamanta.
Peucedanum.
Crithmum.
Heracleum.
Ligusticum.
Angelica.
Sium.
Sison.
Oenanthe.
Phellandrium.
Cicuta.
Æthusa.
Coriandrum.
Scandix.
Chærophyllum.
Imperatoria.
Pastinaca.
Smyrnium.
Anethum.
Carum.
Pimpinella.
Apium.
Ægopodium.

TRIGYNIA. (3 Pistils.)

Viburnum.
Sambucus.
Staphylæa.
Tamarix.
Corrigiola.
Alsine.

Tetragynia. (4 Pistils.)

Parnassia.

Pentagynia. (5 Pistils.)

Statice. *Linum.* *Drosera.*
Sibbaldia.

Polygynia. (many Pistils.)

Myosurus.

PENTANDRIA.

MONOGYNIA.

MYOSO'TIS. *Gærtn.* 68.

Cal. *Cup* with 5 shallow clefts, oblong, upright, acute, permanent.

Bloss. 1 petal, salver-shaped. *Tube* cylindrical, short. *Border* flat, with 5 shallow clefts. *Segments* blunt, notched at the end. *Mouth* closed with 5 convex, prominent, approaching valves.

Stam. *Filaments* 5, very short, in the neck of the tube. *Anthers* very small, covered.

Pist. *Germens* 4. *Style* thread-shaped, as long as the tube of the blossom. *Summit* blunt.

S. Vess. none. The *Cup* enlarged and upright contains the seeds within it.

Seeds 4, egg-shaped, tapering to a point, smooth.

Obs. In some species the seeds are smooth, in others set with hooked prickles.

LITHOSPER'MUM. *Tourn.* 55. *Gærtn.* 67.

Cal. *Cup* with 5 divisions, oblong, straight, acute, permanent. *Segments* awl-shaped, keeled.

Bloss. 1 petal, funnel-shaped, as long as the calyx. *Tube* cylindrical. *Border* with 5 shallow clefts, blunt, upright. *Mouth* open, naked.

Stam. *Filaments* 5, very short. *Anthers* oblong, in the mouth of the blossom.

Pist. *Germen* 4. *Style* thread-shaped, as long as the tube of the blossom. *Summit* blunt, cloven.

S. Vess. none. The seeds are contained in the bottom of the open cup, which is longer than the seeds.

Seeds 4, egg-shaped, tapering, hard, smooth.

ANCHU'SA. *Tourn.* 53. *Buglosum. Gærtn.* 67.

Cal. *Cup* with 5 divisions, oblong, cylindrical, acute, permanent.

Bloss. 1 petal, funnel-shaped. *Tube* cylindrical, as long as the cup. *Border* with 5 shallow clefts, blunt, a little expanding. *Mouth* closed by 5 convex, prominent, oblong, approaching valves.

Stam. *Filaments* 5, very short, in the mouth of the bloss. *Anthers* oblong, fixed sidewise, covered (by the valves of the tube.)

Pist. *Germens* 4. *Style* thread-shaped; as long as the stamens. *Summit* blunt, notched at the end.

S. Vess. none. The *Cup* growing larger and upright incloses the seeds.

Seeds 4, rather long, blunt, bulging.

Obs. When the blossom is fully expanded it is nearly salver-shaped.

CYNOGLO'SSUM. *Tourn.* 57 & 58, *Omphalodes. Gærtn.* 67.

Cal. *Cup* with 5 divisions, oblong, acute, permanent.

Bloss. 1 petal, funnel-shaped, as long as the cup. *Tube* cylindrical, shorter than the border, *Border* with 5 shallow clefts, blunt. *Mouth* closed by 5 convex, prominent, approaching valves.

Stam. *Filaments* 5, very short, fixed to the mouth of the blossom. *Anthers* roundish, naked.

Pist. *Germens* 4. *Style* awl-shaped, as long as the stamens, permanent. *Summit* notched at the end.

S. Vess. none, but the seed-coats of the four seeds, depressed, roundish, outwardly more blunt, rough, not opening, flattish upon the outer side; fixed by their points.

SEEDS 4, somewhat egg-shaped, bulging, tapering to a point, smooth.

OBS. The essence of this genus consists in the 4 seed-coats fixed to the style, each containing a single seed. LINN.

PULMONA'RIA. *Tourn.* 55.

CAL. *Cup* 1 leaf, with 5 teeth, a 5-sided prism, permanent.
BLOSS. 1 petal, funnel-shaped. *Tube* cylindrical, as long as the cup. *Border* with 5 shallow clefts, blunt, upright but expanding. *Mouth* open.
STAM. *Filaments* 5, very short, in the mouth of the tube. *Anthers* upright, approaching.
PIST. *Germens* 4. *Style* thread-shaped, shorter than the cup. *Summit* blunt, notched at the end.
S. VESS. none. The *Calyx* unchanged contains the seeds in its base.
SEEDS 4, roundish, blunt.

SYM'PHYTUM. *Tourn.* 56. *Gærtn.* 67.

CAL. *Cup* with 5 divisions, and 5 corners, upright, acute, permanent.
BLOSS. 1 petal, bell-shaped. *Tube* very short. *Border* tubular, distended, thicker than the tube. *Rim* with 5 blunt reflected teeth. *Mouth of the Tube* furnished with 5 valves, spear-shaped, toothed at the edge, shorter than the border, approaching so as to form a cone.
STAM. *Filaments* 5, awl-shaped, alternating with the valves in the mouth of the tube. *Anthers* upright, acute, covered.
PIST. *Germens* 4. *Style* thread-shaped, as long as the blossom. *Summit* simple.
S. VESS. none. The *Cup* grows larger and wider.
SEEDS 4; bulging, tapering, approaching at the points.

BORA'GO. *Tourn.* 53. *Gærtn.* 67.

CAL. *Cup* with 5 divisions, permanent.
BLOSS. 1 petal, wheel-shaped, as long as the cup. *Tube* shorter than the cup. *Border* with 5 divisions, wheel-shaped, flat. *Mouth* crowned with 5 prominencies, which are blunt and notched at the end.

Stam. *Filaments* 5, awl-shaped, approaching. *Anthers* oblong, approaching, fixed to the inner side, and about the middle of the filament.

Pist. *Germens* 4. *Styles* thread-shaped, longer than the anthers. *Summit* simple.

S. Vess. none. The cup grows larger, and inflated.

Seeds 4, roundish, wrinkled, keeled outwardly towards the point, globular at the base, lying lengthwise in a hollow of the receptacle.

Obs. The shape of the segments of the cup, and the size of the tube of the blossom, are apt to vary. Linn.

ASPERU'GO. *Tourn.* 54.

Cal. *Cup* 1 leaf, permanent, with 5 upright unequal segments.

Bloss. 1 petal, funnel-shaped. *Tube* cylindrical, very short. *Border* with 5 shallow clefts, blunt, small. *Mouth* closed by 5 convex, projecting, approaching valves.

Stam. *Filaments* 5, very short, fixed in the mouth of the tube. *Anthers* rather oblong, covered.

Pist. *Germens* 4, compressed. *Style* thread-shaped, short. *Summit* blunt.

S. Vess. none. The *Cup* very large, upright, compressed, the sides flat and parallel, indented.

Seeds 4. oblong, compressed, in distant pairs.

LYCOP'SIS. *Gærtn.* 67.

Cal. *Cup* with 5 divisions, permanent. *Segments* oblong, acute, open.

Bloss. 1 petal, funnel-shaped. *Tube* cylindrical, crooked. *Border* with 5 shallow clefts, blunt. *Mouth* closed by 5 prominent, convex, approaching valves.

Stam. *Filaments* 5, very small, fixed to the bend of the tube. *Anthers* small, covered by the valves.

Pist. *Germens* 4. *Style* thread-shaped, as long as the stamens. *Summit* blunt, cloven.

S. Vess. none. *Cup* very large, bladder-shaped.

Seeds 4, rather long.

Obs. The essential character of this genus consists in the curvature of the tube of the blossom. Linn.

E'CHIUM. *Tourn.* 54.

Cal. *Cup* with 5 divisions, upright, permanent. *Segments* awl-shaped, upright.

Bloss. 1 petal, bell-shaped. *Tube* very short. *Border* gradually widening, with 5 clefts, blunt, upright. *Segments* generally unequal, the 2 *upper* being the longest; the *lower* smaller, acute, reflected. *Mouth* open.

Stam. *Filaments* 5, as long as the blossom, awl-shaped, declining, unequal. *Anthers* oblong, fixed sidewise.

Pist. *Germens* 4. *Style* thread-shaped, as long as the stamens. *Summit* blunt, cloven.

S. Vess. none. The cup becoming more rigid, contains the seeds.

Seeds 4, roundish, obliquely tapering to a point.

Obs. In the Echium *italicum* the blossom is nearly regular. Linn.

PRI'MULA. *Tourn.* 47. *Gærtn.* 50.

Cal. *Involucrum* small, many leaved, including several flowers. *Cup* 1 leaf, tubular, acute, upright, permanent, with 5 angles, and 5 teeth.

Bloss. 1 petal. *Tube* cylindrical, as long as the cup, terminated by a short hemispherical neck. *Border* expanding, with 5 shallow clefts. *Segments* inversely heart-shaped, notched at the end, blunt. *Mouth* open.

Stam. *Filaments* 5, very short, within the neck of the blossom. *Anthers* upright, approaching, tapering to a point, within the tube.

Pist. *Germen* globular. *Style* thread-shaped, as long as the cup. *Summit* globular.

S. Vess. *Capsule* cylindrical, nearly as long as the cup, which covers it, of 1 cell, opening at the top with 10 teeth.

Seeds numerous, roundish. *Receptacle* oblong, egg-shaped, loose.

CY'CLAMEN. *Tourn.* 68.

Cal. *Cup* with 5 shallow clefts, roundish, permanent. *Segments* egg-shaped.

Bloss. 1 petal; *Tube* nearly globular, twice the size of the cup, small, nodding. *Border* reflected upwards, very large, with 5 divisions. *Segments* spear-shaped. *Neck* protruding.

STAM. *Filaments* 5, very small, in the tube of the blossom. *Anthers* straight, acute, approaching, in the neck of the blossom.

PIST. *Germen* roundish. *Style* thread-shaped, straight, longer than the stamens. *Summit* acute.

S. VESS. *Berry* globular, of 1 cell, opening at the top in 5 directions, covered by a shell like a capsule.

SEEDS many, somewhat egg-shaped, but angular. *Receptacle* egg-shaped, loose.

MENYAN'THES. *Tourn.* 15, & 67, *Nymphoides. Gærtn.* 114.

CAL. *Cup* 1-leaf, with 5 divisions, upright, permanent.

BLOSS. 1 petal, funnel-shaped. *Tube* short, somewhat cylindrical at bottom, but funnel-shaped upwards. *Border* cloven more than half way down into 5 segments. *Segments* blunt, reflected and expanding, remarkably shaggy.

STAM. *Filaments* 5, awl-shaped, short. *Anthers* acute, upright, cloven at the base.

PIST. *Germen* conical. *Style* cylindrical, nearly as long as the blossom. *Summits* cloven, compressed.

S. VESS. *Capsule* egg-shaped, of 1 cell, bound round by the cup.

SEEDS many, egg-shaped, minute.

OBS. In the M. *nymphoides*, the petals are fringed at the edge, but not hairy on their upper surface. LINN.

HOTTO'NIA. *Curt.* i. 4.

CAL. *Cup* 1 leaf, with 5 divisions. *Segments* strap-shaped, upright, but expanding.

BLOSS. 1 petal, salver-shaped. *Tube* as long as the cup. *Border* with 5 clefts, flat. *Segments* egg-oblong, notched at the end.

STAM. *Filaments* 5, awl-shaped, short, upright, standing upon the tube, and opposite to the segments of the blossom. *Anthers* oblong.

PIST. *Germen* globular, but tapering to a point. *Style* thread-shaped, short. *Summit* globular.

S. VESS. *Capsule* globular, tapering to a point, of 1 cell, standing upon the cup.

SEEDS many, roundish. *Receptacle* globular, large.

OBS. In the Hottonia *palustris*, the flowers have sometimes 6 stamens, and then the cup and blossoms have 6 divisions.

LYSIMA'CHIA. *Tourn.* 59. *Gærtn.* 50.

CAL. *Cup* with 5 divisions, acute, upright, permanent.
BLOSS. 1 petal, wheel-shaped. *Tube* none. *Border* with 5 divisions, flat. *Segments* egg-oblong.
STAM. *Filaments* 5, awl-shaped, opposite the segments of the blossom. *Anthers* tapering.
PIST. *Germen* roundish. *Style* thread-shaped, as long as the stamens. *Summit* blunt.
S. VESS. *Capsule* globular, sharp-pointed, of 1 cell and 10 valves.
SEEDS several, angular. *Receptacle* very large, globular, dotted.

OBS. In some species the stamens are united at the base. (Schreb.) In L. *thyrsiflora* the segments of the cup and the blossom vary from 5 to 8, as does likewise the number of stamens.

ANAGAL'LIS. *Tourn.* 59. *Gærtn.* 50.

CAL. *Cup* with 5 divisions, acute, permanent. *Segments* keeled.
BLOSS. 1 petal, wheel-shaped. *Tube* none. *Border* with 5 divisions, flat. *Segments* egg-shaped, but rounded, connected by the claws.
STAM. *Filaments* 5, upright, hairy towards the bottom, shorter than the blossom. *Anthers* simple.
PIST. *Germen* globular. *Style* thread-shaped, rather leaning. *Summit* knobbed.
S. VESS. *Capsule* globular, of 1 cell, cut round.
SEEDS several, angular. *Receptacle* very large, globular.

AZA'LEA. *Gærtn.* 63.

CAL. *Cup* with 5 divisions, acute, upright, small, coloured, permanent.
BLOSS. 1 petal, bell-shaped, with 5 shallow clefts. *Segments* with the edges bent inwards.
STAM. *Filaments* 5, thread-shaped, growing on the receptacle, loose. *Anthers* simple.

Pist. *Germen* roundish. *Style* thread-shaped, as long as the blossom, permanent. *Summit* blunt.

S. Vess. *Capsule* roundish, with 5 cells and 5 valves.

Seeds many, roundish.

Obs. The blossom in some species is funnel-shaped. In some the stamens are very long, and declining. Linn.

CONVOL'VULUS. *Tourn.* 17.

Cal. *Cup* with 5 divisions, approaching, egg-shaped, blunt, small, permanent.

Bloss. 1 petal, bell-shaped, expanding, large, plaited. *Border* slightly 5-lobed.

Stam. *Filaments* 5, awl-shaped, half the length of the blossom. *Anthers* egg-shaped, compressed.

Pist. *Germen* roundish. *Style* thread-shaped, as long as the stamens. *Summits* 2, oblong, broadish.

S. Vess. *Capsule* inclosed by the cup, roundish, of 1 cell, with 1, 2, or 3 valves.

Seeds 2, roundish.

Obs. The blossom has generally 10 notches, but sometimes only 5; and in some species it is funnel-shaped. Linn.

POLEMO'NIUM. *Tourn.* 61. *Gærtn.* 62.

Cal. *Cup* beneath, of 1 glass-shaped leaf, permanent, acute, with 5 shallow clefts.

Bloss. 1 petal, wheel-shaped. *Tube* shorter than the cup, closed by 5 valves, placed at the top of it. *Border* with 5 divisions, large, flat. *Segments* roundish, blunt.

Stam. *Filaments* 5, thread-shaped, inclining, shorter than the blossom, standing upon the valves of the tube. *Anthers* roundish, fixed sidewise.

Pist. *Germen* egg-shaped, acute, superior. *Style* thread-shaped, as long as the blossom. *Summit* with 3 clefts, rolled back.

S. Vess. *Capsule* covered, egg-shaped, but with 3 angles, 3 cells, and 3 valves, opening at the top. *Partitions* opposite to the valves.

Seeds several, irregular, rather acute.

Obs. In P. *cæruleum*, though the capsule is seamed as if composed of 3 valves, they only open at the top.

CAMPA'NULA. *Tourn.* 37. *Gærtn.* 31.

CAL. *Cup* with 5 divisions, acute, upright but expanding, superior.

BLOSS, 1 petal, bell-shaped, with 5 shallow clefts, impervious at the base, shrivelling. *Segments* broad, acute, spreading.

Nectary in the bottom of the blossom, composed of 5 valves, acute, approaching, covering the receptacle.

STAM. *Filaments* 5, hair-like, very short, growing upon the points of the valves of the nectary. *Anthers* compressed, longer than the filaments.

PIST. *Germen* beneath, angular. *Style* thread-shaped, longer than the stamens. *Summit* thickish, oblong, with 3 divisions, which are rolled backwards.

S. VESS. *Capsule* roundish, angular, of 3 or 5 cells, and letting out the seed at as many lateral holes.

SEEDS numerous, small, fixed to a columnar receptacle.

OBS. The figure of the seed-vessel is uncertain. In Camp. *Trachelium*, it is 3-celled, woolly, and rough; in C. *Rapunculus* it is 3-celled, egg-shaped, and smooth; in C. *hybrida*, it is 3-celled, columnar, and prism-shaped. LINN.

PHYTEU'MA. *Tourn.* 38, *Rapunculus*. *Gærtn.* 30.

CAL. *Cup* 1 leaf, with 5 divisions, acute, not quite upright, but expanding, superior.

BLOSS. 1 petal, wheel-shaped, expanding, with 5 divisions. *Segments* strap-shaped, acute, bent back.

STAM. *Filaments* 5, shorter than the blossom. *Anthers* oblong.

PIST. *Germen* beneath. *Style* thread-shaped, as long as the blossom, bent back. *Summit* with 2 or 3 clefts, oblong, rolled back.

S. VESS. *Capsule* roundish, 2 or 3 celled, opening at each by a lateral hole.

SEEDS several, small, roundish.

LOBE'LIA. *Tourn.* 51, *Rapuntium*. *Gærtn.* 29.

CAL. *Cup* 1 leaf, with 5 clefts, very small, embracing the germen, shrivelling. *Little Teeth* nearly equal, the 2 upper ones pointing more upwards.

BLOSS. *Petal* 1, irregular. *Tube* cylindrical, longer than the cup, above divided lengthwise. *Border* with 5 divisions. *Segments* spear-shaped, the 2 *Upper Ones* smaller, more reflected, more deeply divided, forming the upper lip. The 3 *Lower Ones* generally larger, and more expanding.

Stam. *Filaments* 5, awl-shaped, as long as the tube of the blossom, united at the top. *Anthers* connected so as to form an oblong cylinder, opening at the base in 5 different directions.

Pist. *Germen* beneath, tapering to a point. *Style* cylindrical, as long as the stamens. *Summit* blunt, rough with hair.

S. Vess. *Capsule* egg-shaped, with 2 or 3 cells, and 2 or 3 valves, opening at the top, encompassed by the cup. *Partitions* opposite the valves.

Seeds many, very small. *Receptacle* conical.

SA'MOLUS. *Tourn.* 60. *Gærtn.* 30.

Cal. *Cup* with 5 divisions, superior, blunt at the base, permanent. *Segments* upright.

Bloss. 1 petal, salver-shaped. *Tube* open, very short, as long as the cup. *Border* flat, blunt, with 5 divisions. *Valves* very short, approaching, fixed to the bottom of the clefts, in the border.

Stam. *Filaments* 5, short, protected by the scales of the blossom. *Anthers* approaching, covered.

Pist. *Germen* beneath. *Style* thread-shaped: as long as the stamens. *Summit* knobbed.

S. Vess. *Capsule* egg-shaped, of 1 cell, and 5 valves, bound round by the cup.

Seeds many, egg-shaped, small. *Receptacle* large, globular.

LONICE'RA. *Tourn.* 378, *Periclymenum. Gærtn.* 27.

Cal. *Cup* superior, with 5 divisions, small.

Bloss. 1 petal, tubular. *Tube* oblong, bulging. *Border* with 5 divisions. *Segments* rolled backwards, 1 segment more deeply separated than the others.

Stam. *Filaments* 5, awl-shaped, nearly as long as the blossom. *Anthers* oblong.

Pist. *Germen* beneath, roundish. *Style* thread-shaped, as long as the blossom. *Summit* a blunt knob.

S. Vess. *Berry* with 2 cells, dimpled.

Seeds roundish, compressed.

Obs. In the Lonicera *Periclymenum*, the segments of the blossom are cut nearly to an equal depth, and the berries are distinct. Linn.

JASIO'NE. *Gærtn.* 30.

Cal. *Common Cup* of 10 leaves, permanent. *Leafits* alternate, the inner narrower, inclosing several flowers upon very short fruit-stalks.
Proper Cup with 5 clefts, superior, permanent.
Bloss. *Individuals* of 1 petal, regular, deeply divided into 5 parts. *Segments* spear-shaped, upright.
Stam. *Filaments* 5, awl-shaped, short. *Anthers* 5, oblong, united at the base.
Pist. *Germen* roundish, beneath. *Style* thread-shaped, the length of the blossom. *Summit* cloven.
S. Vess. *Capsule* roundish, of 5 angles, and 2 cells, crowned with the proper cup, opening with a circular hole at the point. *Partition* divided down the middle.
Seeds many, somewhat egg-shaped. *Receptacle* nearly globular, loose, on a little foot-stalk at the base of the capsule.

Obs. The central florets are frequently barren, in which case the summit is club-shaped and undivided. Linn.

VERBAS'CUM. *Tourn.* 61. *Gærtn.* 55.

Cal. *Cup* 1 leaf, with 5 divisions, small, permanent. *Segments* upright, acute.
Bloss. 1 petal, wheel-shaped, somewhat unequal. *Tube* cylindrical, very short. *Border* with 5 divisions, expanding. *Segments* egg-shaped, blunt.
Stam. *Filaments* 5, awl-shaped, shorter than the blossom. *Anthers* roundish, compressed, upright.
Pist. *Germen* roundish. *Style* thread-shaped, leaning, as long as the stamens. *Summit* rather thick and blunt.
S. Vess. *Capsule* roundish, with 2 cells and 2 valves, opening at the top. *Receptacle* the shape of half an egg, fixed to the partition.
Seeds numerous, angular.

Obs. In most species the stamens are leaning, unequal, and the lower part of the filaments clothed with soft, coloured hairs. Linn.

DATU'RA. *Tourn.* 43, & 44. *Stramonium.*

Cal. *Cup* 1 leaf, oblong, tubular, bellying, with 5 angles and 5 teeth, separating horizontally near the base, the remaining part irregular, permanent.

Bloss. 1 petal, funnel-shaped. *Tube* cylindrical, generally longer than the cup. *Border* upright but expanding, almost entire, with 5 angles, 5 tapering teeth, and 5 plaits.

Stam. *Filaments* 5, awl-shaped, as long as the cup. *Anthers* oblong, blunt, compressed.

Pist. *Germen* egg-shaped. *Style* thread-shaped, straight. *Summit* thick, blunt, composed of 2 flat plates.

S. Vess. *Capsule* nearly egg-shaped, with 2 cells and 4 valves, standing upon the remains of the cup. *Receptacle* large, convex, dotted, fixed to the partition.

Seeds numerous, kidney-shaped.

Obs. The smoothness or thorny state of the capsules is subject to vary. Linn.

HYOSCY'AMUS. *Tourn.* 42. *Gærtn.* 76.

Cal. *Cup* 1 leaf, tubular, bellying in the lower part. *Rim* with 5 clefts, acute, permanent.

Bloss. 1 petal, funnel-shaped. *Tube* cylindrical, short, *Border* upright, but expanding, with 5 shallow clefts. *Segments* blunt, 1 broader than the rest.

Stam. *Filaments* 5, awl-shaped, leaning. *Anthers* roundish.

Pist. *Germen* roundish. *Style* thread-shaped, as long as the stamens. *Summit* a knob.

S. Vess. *Capsule* egg-shaped, blunt, marked with a groove upon each side, of 2 cells formed by 2 capsules closely pressed together, cut round, and with a lid opening horizontally. *Receptacle* half egg-shaped, fixed to the partition.

Seeds numerous, unequal.

A'TROPA. *Tourn.* 13. *Belladonna.*

Cal. *Cup* 1 leaf, permanent, with 5 divisions, bulging. *Segments* acute.

Bloss. 1 petal, bell-shaped. *Tube* very short. *Border* bellying, egg-shaped, longer than the cup. *Mouth* small, with 5 clefts open. *Segments* nearly equal.

STAM. *Filaments* 5, awl-shaped, fixed to the base of, and as long as the blossom, approaching at the base, but bowed outwards, and diverging towards the top. *Anthers* rather thick, rising.

PIST. *Germen* half-egg-shaped. *Style* thread-shaped, leaning, as long as the stamens. *Summit* knobbed, transversely oblong, rising.

S. VESS. *Berry* of 2 cells, globular, sitting upon the cup, which enlarges. *Receptacle* fleshy, kidney-shaped, convex on both sides.

SEEDS numerous, kidney-shaped.

SOLA'NUM. *Tourn.* 62.

CAL. *Cup* 1 leaf, with 5 shallow clefts, upright, acute, permanent.

BLOSS. 1 petal, wheel-shaped. *Tube* very short. *Border* large, plaited, with 5 shallow clefts, turned back and flat.

STAM. *Filaments* 5, awl-shaped, very small. *Anthers* oblong, approaching, a little united, with 2 open pores at the end.

PIST. *Germen* roundish. *Style* thread-shaped, longer than the stamens. *Summit* blunt.

S. VESS. *Berry* roundish, glossy, with a hollow dot at the end, and 2 cells. *Receptacle* convex on both sides, fleshy.

SEEDS several, roundish, dispersed among pulp.

CHIRO'NIA. *Tourn.* 48, *Centaurium. Gærtn.* 114.

CAL. *Cup* 1 leaf, with 5 divisions, permanent, *little leaves* oblong, upright, acute.

BLOSS. 1 petal, equal. *Tube* narrower. *Border* with 5 divisions, expanding. *Segments* egg-shaped, equal.

STAM. *Filaments* 5, broad, short, growing from the top of the tube. *Anthers* oblong, upright, large, approaching, spirally twisted when their pollen is shed.

PIST. *Germen* egg-shaped. *Style* thread-shaped, a little longer than the stamens. *Summit* knobbed, rising up.

S. VESS. *Berry* egg-shaped, of 1 cell, or *Capsule* 2-valved half divided into 2 cells.

SEEDS numerous, small, fixed to the receptacle by the 2 opposite sides, or to the seam.

Obs. The seed-vessel in some species is a berry, in others a capsule. Linn. In Chironia *centaurium* and *pulchella* the bloss. is funnel-shaped, and the *summits* horse-shoe-shaped.

RHAM'NUS. *Tourn.* 366, & 383. *Frangular.* *Gærtn.* 106.

Cal. *Cup* none, except the blossom be considered as such.

Bloss. 1 petal, funnel-shaped, closed at the base, rough outwardly, but coloured within. *Tube* turban-shaped, cylindrical. *Border* expanding, divided, acute. *Scales* 5, very small, 1 at the base of each division of the blossom, approaching inwards.

Stam. *Filaments* as many as the segments of the blossom, awl-shaped, growing upon the bloss. under the scales. *Anthers* small.

Pist. *Germen* roundish. *Style* thread-shaped, as long as the stamens. *Summit* blunt, divided into fewer segments than the blossom.

S. Vess. *Berry* roundish, naked, divided into fewer cells than the blossom has segments.

Seeds solitary roundish, bulging on one side, compressed on the other.

Obs. Rhamnus *catharticus* has a 4-cleft summit and blossom, and bears a 4-seeded berry, it also bears male and female flowers on separate plants. Rh. *Frangula* has a 5-cleft blossom. a 4-seeded berry, and a summit notched at the end.

EUO'NYMUS. *Tourn.* 388. *Gærtn.* 113.

Cal. *Cup* 1 leaf, with 5 divisions, flat. *Segments* roundish, concave.

Bloss. *Petals* 5, egg-shaped, flat, expanding, longer than the cup.

Stam. *Filaments* 5, awl-shaped, upright, shorter than the blossom, standing upon the germen, as on a receptacle. *Anthers* double.

Pist. *Germen* tapering to a point. *Style* short, simple. *Summit* blunt.

S. Vess. *Capsule* succulent, coloured, with 5 sides, 5 angles, 5 cells, and 5 valves.

Seed solitary, egg-shaped, inclosed in a berry-like seed-coat.

Obs. In some species 4 is the prevailing number in the parts of the flower and fruit, and in others there are no filaments except the tapering points of the germen. Linn.

VI'OLA. *Tourn.* 236.

Cal. *Cup* 5-leaved, short, permanent; *leafits* egg-oblong; rather acute at the end, blunt at the base, fixed above the base, equal but variously disposed; 2 support the upper petal, 2 the 2 lateral petals, and 1 supports the 2 lower petals.

Bloss. *Petals* 5, irregular, unequal, the *Upper* straight, facing downwards, broader and blunter than the rest, notched at the end, terminating at the base in a blunt horn-like *Nectary*, projecting between the leaves of the cup.

Lateral Petals 2; opposite, blunt, straight.

Lower Petals 2; larger, reflected upwards.

Stam. *Filaments* 5, very small, the 2 near the uppermost petal furnished with little appendages which enter the nectary. *Anthers* generally united, blunt, with membranes at the end.

Pist. *Germen* roundish, superior. *Style* thread-shaped, projecting beyond the anthers. *Summit* oblique.

S. Vess. *Capsule* egg-shaped, 3-edged, blunt, with 1 cell and 3 valves.

Seeds many, egg-shaped, furnished with appendages, fixed to the valves. *Receptacle* narrow, running like a line along each valve.

Obs. In some species the *summit* is a simple reflected hook, in others a little concave knob, perforated at the end.

IMPA'TIENS. *Tourn.* 235, *Balsamina. Gærtn.* 113.

Cal. *Cup* 2 leaves, very small. *Leafits* circular, but tapering to a point, equal, placed at the sides of the blossom, coloured, deciduous.

Bloss. *Petals* 5, gaping, unequal.

Upper Petal circular, flat, upright, with 3 shallow segments, tapering to a point, forming the *Upper Lip.*

Lower Petals 2, bent back, large, broadest on the outer part, blunt, irregular, forming the *Lower Lip*.

Intermediate Petals 2, opposite, from the base of the upper petal.

Nectary 1 leaf like a hood, receiving the bottom of the flower, mouth oblique, rising outwards, the base ending in a horn.

STAM. *Filaments* 5, very short, narrower towards the base, bent inwards. *Anthers* 5, united, but separate at the base.

PIST. *Germen* egg-shaped, but tapering to a point. *Style* none. *Summit* simple, shorter than the anthers.

S. VESS. *Capsule* 1 cell, with 5 valves, which, opening with a spring, roll up into a spiral.

SEEDS many, roundish, fixed to a pillar-like receptacle.

OBS. In some species the intermediate petals are wanting; in others the nectary has no horn. Capsule in some species long, in others egg-shaped.

RI'BES. *Tourn.* 409, *Grossularia. Gærtn.* 28.

CAL. *Cup* 1 leaf, with 5 shallow clefts, bellying, permanent. *Segments* oblong, concave, coloured, reflected.

BLOSS. 5 petals, small, blunt, upright, growing to the edge of the cup.

STAM. *Filaments* 5, awl-shaped, upright, standing on the cup. *Anthers* fixed sidewise, compressed, opening at the edges.

PIST. *Germen* beneath, roundish. *Style* cloven. *Summits* blunt.

S. VESS. *Berry* globular, of 1 cell, dimpled. *Receptacles* 2, opposite, fixed to the sides, extending lengthwise.

SEEDS several, roundish, somewhat compressed.

OBS. In the Ribes *alpinum*, the male and female flowers are sometimes found on different plants. (Leers.)

HE'DERA. *Tourn.* 384. *Gærtn.* 26.

CAL. *Involucrum* of the simple umbel very small, with many teeth. *Cup* very small, with 5 teeth, binding round the germen.

BLOSS. *Petals* 5, oblong, expanding, bent inwards at the points.

STAM. *Filaments* 5, awl-shaped, upright, as long as the blossom. *Anthers* fixed sidewise, forked at the base.

PIST. *Germen* turban-shaped, bound round by the cup. *Style* simple, very short. *Summit* undivided.

S. Vess. *Berry* globular, with 5 cells.
Seeds 5, large, bulging on 1 side, angular on the other, covered with a seed-coat.

Obs. With us the berry has rarely more than 4 cells, and in general only 2 or 3 seeds attain perfection; but sometimes I have found it with 5 cells, and 5 perfect seeds.

ILLE'CEBRUM. *Tourn.* 288, *Paronychia.*

Cal. *Cup* 5 leaves and 5 angles, gristly. *Leafits* coloured, tapering to a point, distant at the points, permanent.
Bloss. none.
Stam. *Filaments* 5, hair-like, within the cup. *Anthers* simple.
Pist. *Germen* egg-shaped, acute, ending in a short cloven style. *Summit* simple, blunt.
S. Vess. *Capsule* roundish, tapering at each end, with 5 valves and 1 cell, covered by the cup.
Seed single, very large, roundish, but acute at each end.

Obs. The fruit varies in several species. Linn.

GLAU'X. *Tourn.* 60.

Cal. none, unless you consider the blossom as such.
Bloss. *Petal* single, upright, with 5 divisions, bell-shaped, permanent. *Segments* blunt, rolled back.
Stam. *Filaments* 5, awl-shaped, upright, as long as the blossom. *Anthers* roundish.
Pist. *Germen* egg-shaped. *Style* thread-shaped, as long as the stamens. *Summit* a knob.
S. Vess. *Capsule* globular, tapering to a point, of 1 cell and 5 valves.
Seeds 5, roundish. *Receptacle* very large, globular, with hollows where the seeds lie.

THE'SIUM. *Jacq. austr.* 410.

Cal. *Cup* 1 leaf, permanent, turban-shaped, with 5 shallow clefts. *Segments* half-spear-shaped, upright, blunt.
Bloss. none, unless you consider the cup as such, from its being coloured on the inside.
Stam. *Filaments* 5, awl-shaped, inserted at the base of the segments of the cup, shorter than the cup. *Anthers* roundish.

PIST. *Germen* beneath, at the bottom of the cup. *Style* thread-shaped, as long as the stamens. *Summit* rather thick and blunt.

S. VESS. none. The cup contains the seed in its bottom, without opening.

SEED single, roundish, covered by the closing cup.

OBS. In the Thesium *alpinum* there are only 4 stamens in each flower. LINN.

VIN'CA. *Tourn.* 45.

CAL. *Cup* with 5 divisions, upright, acute, permanent.

BLOSS. 1 petal, salver-shaped. *Tube* longer than the cup, cylindrical in the lower part, wider above, marked with 5 grooves, and 5 angles at the mouth. *Border* with 5 divisions, horizontal. *Segments* connected to the top of the tube, broadest at the outward edge, and obliquely lopped.

STAM. *Filaments* 5, very short, first bent inwards, and then backwards. *Anthers* membranaceous, blunt, upright, but bowed inwards, with the pollen at the margins.

PIST. *Germens* 2, roundish, with 2 roundish bodies lying contiguous to them. *Style* 1, common to both germens, cylindrical, as long as the stamens. *Summit* a concave knob, sitting on a flat circular substance.

S. VESS. 2 *Air-bags*, cylindrical, long, tapering to a point, upright, of 1 valve, opening lengthwise.

SEEDS numerous, oblong, cylindrical, furrowed, naked.

DIGYNIA.

HERNIA'RIA. *Tourn.* 288.

CAL. *Cup* 1 leaf, with 5 divisions, acute, expanding, coloured, within, permanent.

BLOSS. none.

STAM. *Filaments* 5, awl-shaped, minute, within the segments of the cup. *Anthers* simple. There are 5 other barren filaments alternating with the segments of the cup.

PIST. *Germen* egg-shaped. *Style* hardly any. *Summits* 2, tapering to a point, as long as the style.

S. Vess. *Capsule* small, at the bottom of the cup, covered, scarcely opening.

Seed solitary, egg-shaped, but tapering to a point, shining.

Obs. The H. *lenticulata* is a little different from the above character. (Reich.)

CHENOPO'DIUM. *Tourn.* 288. *Gærtn.* 75.

Cal. *Cup* with 5 divisions, concave, permanent. *Segments* egg-shaped, concave, membranaceous at the edges.

Bloss. none.

Stam. *Filaments* 5, awl-shaped, as long as the segments of the cup, and standing opposite to them. *Anthers* roundish, double.

Pist. *Germen* round and flat. *Style* short, deeply divided. *Summits* blunt.

S. Vess. none. The cup closing upon the seed, has 5 sides, and 5 compressed angles, deciduous.

Seed single, round, flatted, superior.

Obs. In some species the style has 3 divisions.

A'TRIPLEX. *Tourn.* 286. *Gærtn.* 75.

Hermaphrodite flowers.

Cal. *Cup* 5 leaves, concave, permanent. *Segments* egg-shaped, concave, membranaceous at the edge.

Bloss. none.

Stam. *Filaments* 5, awl-shaped, opposite to the leaves of the cup, and longer than them. *Anthers* roundish, double.

Pist. *Germen* round. *Style* deeply divided, short. *Summits* reflected.

S. Vess. none. The cup closing, with 5 sides and 5 angles, the angles compressed, deciduous.

Seed single, roundish, flatted and depressed.

Female flowers on the same plant.

Cal. *Cup* 2 leaves. *Leafits* flat, upright, egg-shaped, acute, large, compressed.

Bloss. none.

Pist. *Germen* compressed. *Style* deeply divided. *Summits* reflected, acute.

S. Vess. none. The valves of the cup, which are large and heart-shaped, inclose the seed between them.

Seed single, roundish, compressed.

OBS. There is a very great affinity between ATRIPLEX, and CHENOPODIUM; the presence of the *female flowers* in the *Atriplex* is the only mark of distinction; for if the CHENOPODIUM had these flowers, it would be ATRIPLEX; and the ATRIPLEX without them would be CHENOPODIUM. LINN.

HU'MULUS. *Tourn.* 309, *Lupulus. Gærtn.* 75.

Male flowers.

CAL. *Cup* 5 leaves, oblong, concave, blunt.

BLOSS. none.

STAM. *Filaments* 5, hair-like, very short. *Anthers* oblong.

Female flowers.

CAL. *General Involucrum* with 4 clefts, acute.

Partial Involucrum, leaves 4, egg-shaped, inclosing 8 florets, each of which is furnished with a

Cup of 1 leaf, egg-shaped, very large, flat on the outer side, approaching at the base.

BLOSS. none.

PIST. *Germen* very small. *Styles* 2, awl-shaped, bent back, and standing wide. *Summits* acute.

S. VESS. none. The cup closing, contains the seed in its base.

SEED 1, roundish, covered by a coat.

BE'TA. *Tourn.* 286. *Gærtn.* 75.

CAL. *Cup* with 5 divisions, concave, permanent. *Segments* egg-oblong, blunt.

BLOSS. none.

STAM. *Filaments* 5, awl-shaped, as long as the segments of the cup, and opposite to them. *Anthers* roundish.

PIST. *Germen* in a manner below the receptacle. *Styles* 2, very short, upright. *Summits* acute.

S. VESS. *Capsule* in the bottom of the cup, of 1 cell, deciduous.

SEED single, kidney-shaped, compressed, enfolded in the cup.

SAL'SOLA. *Tourn.* 128, *Kali. Gærtn.* 75.

CAL. *Cup* with 5 divisions. *Segments* egg-shaped, concave, permanent.

BLOSS. none, unless you call the cup the blossom.

STAM. *Filaments* 5, very short, standing upon the segments of the cup. *Anthers* oblong.

PIST. *Germen* globular. *Style* short, with 2 or 3 divisions. *Summits* bent back.

S. VESS. *Capsule* egg-shaped, of 1 cell, lapped up in the cup.

SEED single, very large, spiral like a snail shell.

OBS. Some species have 3 styles. (Reich.)

UL'MUS. *Tourn.* 372. *Gærtn.* 49.

CAL. *Cup* 1 leaf, turban-shaped, wrinkled, permanent. *Border* with 5 clefts, upright, coloured within.

BLOSS. none.

STAM. *Filaments* 5, awl-shaped, twice as long as the cup. *Anthers* with 4 furrows, upright, short.

PIST. *Germen* roundish, upright. *Styles* 2, reflected, shorter than the stamens. *Summits* downy.

S. VESS. *Berry* oval, large, juiceless, compressed, winged with a membrane, of 1 cell.

SEED single, somewhat globular, but a little compressed.

OBS. The number of stamens varies, from 4 to 8. (See Schreb.)

SWER'TIA. *Gærtn.* 114.

CAL. *Cup* with 5 divisions, flat, permanent. *Segments* spear-shaped.

BLOSS. 1 petal, wheel-shaped. *Border* flat, with 5 divisions. *Segments* spear-shaped, larger than the cup, connected by the claws.

Nectaries 10, consisting of 2 hollow dots in the inner side of the base of each segment of the blossom, encompassed with small upright bristles.

STAM. *Filaments* 5, awl-shaped, upright, but expanding, shorter than the blossom. *Anthers* fixed sidewise.

PIST. *Germen* egg-oblong. *Style* none. *Summits* 2, simple.

S. VESS. *Capsule* cylindrical, tapering to a point at each end, with 1 cell and 2 valves.

SEEDS numerous, small, fixed to the seams of the capsule.

GENTIA'NA. *Tourn.* 40. *Gærtn.* 114.

CAL. *Cup* with 5 divisions, acute, permanent. *Segments* oblong.

BLOSS. 1 petal, tubular below. *Tube* closed, with 5 clefts upwards, flat, shrivelling, and variously shaped.

STAM. *Filaments* 5, awl-shaped, shorter than the blossom. *Anthers* simple.

PIST. *Germen* oblong, cylindrical, as long as the stamens. *Styles* none. *Summits* 2, egg-shaped.

S. VESS. *Capsule* oblong, cylindrical, tapering, slightly cloven at the end, of 1 cell, and 2 valves.

SEEDS numerous, small, fixed to the sides of the capsule on every part.

OBS. The figure of the fruit is constant; but the flowers vary in different species, both as to the number and shape of the parts. In one species the throat of the blossom is open, in another it is closed with soft hairs. In some, the segments of the blossom are fringed: in others, the border is bell-shaped, upright, and plaited. Some have a starry appearance, with small segments betwixt the larger; others are funnel-shaped, &c. LINN.—In Gentiana *campestris*, and G. *filiformis*, the blossoms have only 4 clefts, but the latter is now removed to the genus Exacum.

XAN'THIUM. *Tourn.* 252.

Male flowers compound.

CAL. *Cup* common to many florets, formed of many leaves, tiled with slender scales, as long as the florets, equal.

BLOSS. *Compound*, uniform, tubular, equal, formed into a hemisphere.

Individual petal 1, tubular, funnel-shaped, upright, with 5 clefts.

STAM. *Filaments* 5, forming a hollow cylinder. *Anthers* upright, parallel, not united.

RECEPT. *Common*, next to none, the florets being separated by chaff.

Female flowers beneath the others, on the same plant, 2 together.

CAL. *Involucrum* containing 2 flowers, formed of 2 *leaves*, opposite, each divided into 3 sharp lobes, the middle lobe projecting farthest, set round with hooked prickles, surrounding and entirely covering the germens to which they are fixed. *Little Segments* loose.

Bloss. none.

Pist. *Germen* oval, rough with hair. *Styles* 2, similar, hair-like. *Summits* simple.

S. Vess. *Berry* dry, egg-oblong, cloven at the end, entirely covered with hooked prickles.

Seed. *Nut* with 2 cells.

ERYNG'IUM. *Tourn.* 173. *Gærtn.* 20.

Cal. *Common Receptacle* conical, florets sitting, separated by chaff. *Involucrum* of the receptacle flat, many-leaved, taller than the florets.

Cup 5 leaves, upright, acute, taller than the blossom, sitting on the germen.

Bloss. *General,* uniform, roundish. *Florets* all fertile. *Individuals* of 5 oblong petals, with the points bent inwards towards the base, and contracted by a line running lengthwise.

Stam. *Filaments* 5, hair-like, straight, taller than the florets. *Anthers* oblong.

Pist. *Germen* beneath, rough with hair. *Styles* 2, thread-shaped, straight, as long as the stamens. *Summits* simple.

S. Vess. *Fruit* egg-shaped, divisible into 2 parts.

Seeds oblong, nearly cylindrical.

Obs. In some species the seeds escape from the crust of the seed-vessel, in others they continue inclosed.

HYDROCO'TYLE. *Tourn.* 173. *Gærtn.* 22.

Umbel simple.

Cal. *Involucrum* frequently of 4 leaves, small. *Cup* hardly perceptible.

Bloss. *General,* uniform in figure, but not in situation. *Florets* all fertile.

Individuals of 5 petals, egg-shaped, acute, entire, expanding.

Stam. *Filaments* 5, awl-shaped, shorter than the blossom. *Anthers* very small.

Pist. *Germen* beneath, upright, compressed, round, target-shaped. *Styles* 2, awl-shaped, very short. *Summits* simple.

S. Vess. none. *Fruit* compressed, round, divisible, crosswise into 2 parts.

Seeds 2, compressed, in the shape of a half moon.

SANI'CULA. *Tourn.* 173. *Gærtn.* 20.

Cal. *Umbel* with very few spokes (generally 4.) *Umbellules* with many spokes crowded into heads.

General Involucrum going half way round, on the outer side. *Partial Involucrum* going quite round, shorter than the florets.

Cup scarcely perceptible.

Bloss. *General*, uniform. The florets in the centre barren. *Individuals*, petals 5, compressed, bent inwards, so as to close the flower.

Stam. *Filaments* 5, simple, upright, twice as long as the petals. *Anthers* roundish.

Pist. *Germen* beneath, rough with stiff hairs. *Styles* 2, awl-shaped, reflected. *Summits* acute.

S. Vess. none. *Fruit* egg-shaped, but acute, rough, dividing into 2.

Seeds 2, convex and prickly on 1 side, flat on the other.

BUPLEU'RUM. *Tourn.* 163. *Gærtn.* 22.

Cal. *Umbel* with fewer than 10 spokes. *Umbellules* with about 10 upright expanding spokes.

General Involucrum of many leaves. *Partial Involucrum* larger, of 5 leaves. *Leafits* expanding, egg-shaped, acute.

Cup indistinct.

Bloss. *General*, uniform. *Florets* all fertile.

Individuals, petals 5, very short, entire, rolled inwards.

Stam. *Filaments* 5, simple. *Anthers* roundish.

Pist. *Germen* beneath. *Styles* 2, reflected, small. *Summits* very small.

S. Vess. none, *Fruit* roundish, compressed, scored, divisible into 2.

Seeds 2, egg-oblong, convex and scored on one side, flat on the other.

Obs. In most of the species the partial Involucrum is shown, and generally taller than the blossom. Linn.

ECHINO'PHORA. *Tourn.* 423.

Cal. *Umbel* of many spokes, the middlemost shortest. *Umbellules* of many florets, those in the centre sitting, with germens amongst the little fruit-stalks.

General Involucrum of several acute leaves.

Partial Involucrum turban-shaped, of 1 leaf, with 6 clefts, acute, unequal.

Cup very small, with 5 teeth, permanent.

Bloss. *General,* irregular, radiated.

Male florets barren. *Female* florets central.

Individuals of 5 unequal petals, standing open.

Stam. *Filaments* 5, simple. *Anthers* roundish.

Pist. *Germen* beneath, oblong, wrapped in the involucrum. *Styles* 2, simple. *Summits* simple.

S. Vess. none; but instead thereof the involucellum grows hard and sharp pointed, and incloses the seed.

Seed single, egg-oblong.

TORDYL'IUM. *Tourn.* 170. *Gærtn.* 21.

Cal. *Umbel* unequal, of many spokes. *Umbellules* unequal, of many parts, very short, flat.

General Involucrum; the *little leaves* slender, undivided, frequently as long as the umbel. *Partial Involucrum* going half way round, outwardly longer than the umbellule. *Cup* with 5 teeth.

Bloss. *General,* irregular, radiated. *Florets* all fertile.

Individuals in the centre, with 5 equal petals, heart-shaped, but bent inwards, *those of the circumference* like the others, but the outermost petal very large, and deeply divided.

Stam. *Filaments* hair-like, 5 in every floret. *Anthers* simple.

Pist. *Germen* beneath, in all the florets roundish. *Styles* 2, small. *Summits* blunt.

S. Vess. *Fruit* roundish, almost flat, a little scolloped at the edge, divisible into 2 parts.

Seeds 2, roundish, almost flat, but raised and scolloped at the edge.

Obs. In Tord. *Anthriscus*, the umbel is but little radiated, and the florets of the centre are barren. Linn.

CAU'CALIS. *Tourn.* 171. *Gærtn.* 20.

CAL. *Umbel* unequal, of very few spokes. *Umbellules* unequal, with more spokes, the 5 outermost of which are the longest.

General Involucrum, leafits as many as the spokes, undivided, membranaceous at the edge, egg-shaped, short. *Partial Involucrum* with leaves similar to the foregoing, longer than the spokes, generally 5 in number.

Cup with 5 teeth, standing out.

BLOSS. *General*, irregular, radiated. *Florets* in the centre barren.

Individuals in the centre, *male*, small, petals 5, equal, heart-shaped, but bent inwards; *in the circumference hermaphrodite*. *Petals* 5, heart-shaped, bent inwards, the outermost very large, and cloven.

STAM. *Filaments* hair-like, 5 in all the florets. *Anthers* small.

PIST. *Germen* beneath, in the florets of the circumference oblong and rough. *Styles* 2, awl-shaped. *Summits* 2, blunt, expanding.

S. VESS. *Fruit* egg-oblong, scored lengthwise, rough with bristly hairs.

SEEDS 2, oblong, flat on 1 side, convex on the other, armed with awl-shaped prickles placed along the scores.

OBS. The general Involucrum is sometimes absent. (Reich.)

DAU'CUS. *Tourn.* 161. *Gærtn.* 20.

CAL. *Umbel* of many spokes, flat while in flower, but when in fruit concave and approaching. *Umbellules* similar to the foregoing.

General Involucrum of many leaves, as long as the umbel; *Leafits* strap-shaped, with winged clefts. *Partial Involucrum* more simple, as long as the umbellule. *Cup* hardly perceptible.

BLOSS. *General*, irregular, somewhat radiated. *Florets* in the centre barren.

Individuals, petals 5, heart-shaped, bent inwards, the outermost the largest.

STAM. *Filaments* 5, hair-like. *Anthers* simple.

PIST. *Germen* beneath, small. *Styles* 2, reflected. *Summits* blunt.

S. Vess. none. *Fruit* egg-shaped, divisible into 2, generally rough with inflexible hairs.

Seeds 2, somewhat egg-shaped, convex, and rough with hairs on one side, flat on the other.

BU'NIUM. *Tourn.* 161, *Bulbocastanum.*

Cal. *Umbel* with fewer than 20 spokes. *Umbellules* very short, crowded.

General Involucrum of many strap-shaped short leaves. *Partial Involucrum* like bristles, as long as the umbellule.

Cup hardly discernible.

Bloss. *General*, uniform. *Florets* all fertile.

Individuals, petals 5, equal, heart-shaped, bent inwards.

Stam. *Filaments* 5, shorter than the petals. *Anthers* simple.

Pist. *Germen* beneath, oblong. *Styles* 2, reflected. *Summits* blunt.

S. Vess. none. *Fruit* egg-shaped, divisible into 2 parts.

Seeds 2, egg-shaped, convex on one side, flat on the other.

CO'NIUM. *Tourn.* 160. *Cicuta. Gærtn.* 22.

Cal. *Umbel* of many spokes, expanding. *Umbellules* the same.

General Involucrum of many leaves, very short, unequal. *Partial Involucrum* of 3 leaves, going half way round.

Cup hardly perceptible.

Bloss. *General*, uniform.

Individuals, petals 5, unequal, heart-shaped, but bent inwards.

Stam. *Filaments* 5, simple. *Anthers* roundish.

Pist. *Germen* beneath. *Styles* 2, reflected. *Summits* blunt.

S. Vess. none. *Fruit* nearly globular, with 5 scolloped ridges, divisible into 2 parts.

Seeds 2, convex on one side, almost hemispherical, scored, flat on the other side.

SELI'NUM. *Gærtn.* 21.

Cal. *Umbel* of many spokes, flat, but expanding; *Umbellule* similar. *General Involucrum,* leaves several, spear-strap-shaped, bent back, the *partial* similar, expanding, as long as the blossom.

Cup hardly discernible.

Bloss. *General,* uniform. All the *florets* fertile.

Individuals, petals 5, heart-shaped, equal.

Stam. *Filaments* 5, hair-like. *Anthers* roundish.

Pist. *Germen* beneath. *Styles* 2, bent back. *Summits* simple.

S. Vess. none. *Fruit* compressed and flatted, oval-oblong, scored on each side along the middle, divisible into 2.

Seeds 2, oval-oblong, flat on each side, scored along the middle, edges membranaceous.

Obs. The figure of the seeds and the number of leafits forming the Involucrum, is apt to vary. (Reich.)

ATHAMAN'TA. *Tourn.* 169. *Oreosclinum.*

Cal. *Umbel* of many spokes, expanding. *Umbellules* with fewer spokes.

General Involucrums many strap-shaped leaves, a little shorter than the spokes. *Partial Involucrum* strap-shaped, as long as the spokes.

Cup not discernible.

Bloss. *General,* uniform. *Florets* all fertile.

Individuals, petals 5, heart-shaped, bent inwards, and notched at the end, not quite equal.

Stam. *Filaments* 5, hair-like, as long as the petals. *Anthers* roundish.

Pist. *Germen* beneath. *Styles* 2, distant. *Summits* blunt.

S. Vess. none. *Fruit* egg-oblong, scored, divisible into 2 parts.

Seeds 2, egg-shaped, convex and scored on 1 side, flat on the other.

PEUCE'DANUM. *Tourn.* 169. *Gærtn.* 21.

Cal. *Umbel* of many very long, slender spokes. *Umbellules* expanding.

General Involucrum of many leaves, strap-shaped, small, reflected. *Partial* still smaller.

Cup with 5 teeth, very small.

Bloss. *General* uniform. *Florets* in the centre barren.
Individuals, petals 5, equal, oblong, entire, bent inwards.

Stam. *Filaments* 5, hair-like. *Anthers* simple.

Pist. *Germen* beneath, oblong. *Styles* 2, small. *Summits* blunt.

S. Vess. none. *Fruit* egg-shaped, divisible into 2, scored on each side, encompassed round by a membranaceous border.

Seeds 2, egg-oblong, compressed, convex on one side, and marked by three rising ridges; edge surrounded by a broad, flat membrane, notched at the end.

CRITH'MUM. *Tourn.* 169.

Cal. *Umbel* of many spokes, hemispherical. *Umbellules* the same.

General Involucrum many leaves, *leafits* spear-shaped, blunt, reflected. *Partial Involucrum* spear-strap-shaped, as long as the umbellule.
Cup hardly perceptible.

Bloss. *General*, uniform. *Florets* all fertile.
Individuals, petals 5, egg-shaped, bent inwards, nearly equal.

Stam. *Filaments* 5, simple, longer than the petals. *Anthers* roundish.

Pist. *Germen* beneath. *Styles* 2; reflected. *Summits* blunt.

S. Vess. none. *Fruit* oval, compressed, divisible into 2.

Seeds 2, oval, compressed and flattish, scored on one side.

HERACLE'UM. *Tourn.* 170, *Sphondylium. Gærtn.* 21.

Cal. *Umbel* very large, many-spoked. *Umbellules* flat.
General Involucrum many leaves, shedding. *Partial*, going half way round on the outer side; *leafits* from 3 to 7, strap-spear-shaped, the outermost longest.
Cup indistinct.

Bloss. *General* irregular, radiated. *Florets* nearly all fertile.
Individuals of the centre, of 5 equal petals, bent and hooked inwards, notched at the end: *of the circum-*

ference, of 5 unequal petals, the *outer* petals largest, with the deepest notches, hooked, oblong.

STAM. *Filaments* 5, longer than the petals. *Anthers* small.

PIST. *Germens* beneath, somewhat egg-shaped. *Styles* 2, short, approaching. *Summits* simple.

S. VESS. none. *Fruit* oval, compressed, scored along the middle on each side, notched at the end, bordered.

SEED 2, egg-shaped, compressed, with a leafy edge.

OBS. In some species the florets in the circumference have only pistils without stamens, and produce seeds; the central florets have stamens without pistils, and are barren. In the H. *Sphondylium* the florets have all stamens and pistils. The general Involucrum is sometimes altogether wanting. LINN. In the British species the florets are generally all radiated, though they are said sometimes to have been found otherwise.

LIGUS'TICUM. *Tourn.* 171, & *Cicutaria*, 171.

CAL. *Umbel* of many spokes. *Umbellules* the same.

General Involucrum 7 unequal membranaceous leaves. *Partial* of about 4 membranaceous leaves.

Cup of 5 teeth, but indistinct.

BLOSS. *General*, uniform. *Florets* all fertile.

Individuals, petals 5, equal, flat, entire, rolled inwards, keeled on the inside.

STAM. *Filaments* 5, hair-like, shorter than the petals. *Anthers* simple.

PIST. *Germen* beneath. *Styles* 2, approaching. *Summits* simple.

S. VESS. none. *Fruit* oblong, angular, with 5 furrows, divisible into 2.

SEEDS 2, oblong, glossy, marked on one side with 5 ridges, flat on the other.

OBS. Male florets have sometimes been observed. (Reich.)

ANGEL'ICA. *Riv.* 17.

CAL. *Umbel* of many spokes, nearly globular. *Umbellules* exactly globular whilst in flower.

General Involucrum small, of 3 or 5 leaves: *Partial* small, of 8 leaves.

Cup with 5 teeth, hardly discernible.

BLOSS. *General*, uniform. *Florets* all fertile.

Individuals, petals 5, spear-shaped, rather flat, but a little bent inwards, shedding.

STAM. *Filaments* 5, simple, longer than the petals. *Anthers* simple.

PIST. *Germen* beneath. *Styles* 2, bent back. *Summits* blunt.

S. VESS. none. *Fruit* roundish, angular, solid, divisible into 2.

SEEDS 2, egg-shaped, flat on one side and encompassed with a border, on the other convex, with 3 furrows.

OBS. In Angelica *sylvestris* the general Involucrum is not always to be found.

SI'UM. *Tourn.* 162. *Gærtn.* 23.

CAL. *Umbel* different in different species. *Umbellules* flat, expanding.

General Involucrum many reflected leaves, shorter than the umbel; *leafits* spear-shaped: *Partial* many leaves: strap-shaped, small.

Cup hardly perceptible.

BLOSS. *General*, uniform. *Florets* all fertile.

Individuals, petals 5, equal, heart-shaped, bent inwards.

STAM. *Filaments* 5, simple. *Anthers* simple.

PIST. *Germen* beneath, very small. *Styles* 2, reflected. *Summits* blunt.

S. VESS. none. *Fruit* nearly egg-shaped, scored, small, divisible into 2.

SEEDS 2, nearly egg-shaped, convex and scored on one side, flat on the other.

OBS. In the Sium *nodiflorum* the general Involucrum is frequently wanting. LINN.

SI'SON. *Jacq. hort.* iii. 17, & 134.

CAL. *Umbel* unequal, with fewer than 6 spokes. *Umbellules* unequal, with fewer than 10 spokes.

General Involucrum mostly of 4 leaves, unequal: *Partial* the same.

Cup hardly perceptible.

BLOSS. *General*, uniform. *Florets* all fertile.

Individuals, equal, of 5 petals, spear-shaped, flat, but a little bent inwards.

STAM. *Filaments* 5, hair-like, as long as the petals. *Anthers* simple.

PIST. *Germen* beneath, nearly egg-shaped. *Styles* 2, reflected. *Summits* blunt.

S. VESS. none. *Fruit* egg-shaped; scored, divisible into 2.

SEEDS 2, egg-shaped, convex and scored on one side, flat on the other.

OBS. S. *inundatum* has no general Involucrum.

OENANTHE. *Tourn.* 166. *Gærtn.* 22.

CAL. *Umbel* with few spokes. *Umbellules* with many very short spokes, crowded together, often without spokes.

General Involucrum many leaves, simple, shorter than the umbel: *Partial* many leaves, small.

Cup with 5 awl-shaped teeth, permanent.

BLOSS. *General*, irregular, irradiated. *Florets* in the circumference barren.

Individuals in the centre hermaphrodite, petals 5, nearly equal, heart-shaped but bent inwards, *in the circumference* male, with 5 very large, unequal, petals, bent inwards, cloven.

STAM. *Filaments* 5, simple. *Anthers* roundish.

PIST. *Germen* beneath. *Styles* 2, awl-shaped, permanent. *Summits* blunt.

S. VESS. none. *Fruit* nearly egg-shaped, crowned with the cup and the pistils, divisible into 2 parts.

SEEDS 2, somewhat egg-shaped, convex on one side, scored, flat on the other, toothed at the point.

OBS. In this genus the cup is more evident than in the other plants of the *umbelliferous* tribe. In some of the species the Involucrum is often wanting. LINN.

PHELLANDRIUM. *Tourn.* 161.

CAL. *Umbel* with many spokes. *Umbellules* the same.

General Involucrum none.

Partial of 7 leaves; *leafits* acute, as long as the umbellule.

Cup of 5 teeth, permanent.

BLOSS. *General*, nearly uniform. *Florets* all fertile, those of the centre smaller.

Individuals unequal, *Petals* 5, tapering to a point, heart-shaped, but bent inwards.

STAM. *Filaments* 5, hair-like, longer than the petals. *Anthers* roundish.

PIST. *Germen* beneath. *Styles* 2, awl-shaped, upright, permanent. *Summits* blunt.

S. VESS. none. *Fruit* egg-shaped, smooth, crowned with the cup and the pistils, divisible into two parts.

SEEDS 2, egg-shaped, smooth.

CICU'TA. *Fl. dan.* 208.

CAL. ~~*Umbel*~~ roundish, with many equal spokes. *Rundlets* roundish, with many equal, bristle-shaped spokes.

General Involucrum none. *Partial* many leaves; *leafits* like bristles, short.

Cup scarcely evident.

BLOSS. *General*, uniform. *Florets* all fertile.

Individuals, petals 5, egg-shaped, nearly equal, bent inwards.

STAM. *Filaments* 5, hair-like, longer than the petals. *Anthers* simple.

PIST. *Germen* beneath. *Styles* 2, thread-shaped, longer than the petals, permanent. *Summits* knob-like.

S. VESS. none. *Fruit* nearly egg-shaped, furrowed, divisible into 2.

SEEDS 2, somewhat egg-shaped, convex and scored on one side, flat on the other.

ÆTHU'SA. *Tourn.* 165, *Meum. Gærtn.* 22.

CAL. *Umbel* expanding, the inner spokes gradually shorter, those in the centre the shortest of all. *Umbellules* small, expanding.

General Involucrum none. *Partial* going half way round, upon the outer side; *leafits* 3 or 5, strap-shaped, very long, pendant.

Cup hardly perceptible.

BLOSS. *General*, nearly uniform. *Florets* all fertile.

Individuals, petals 5, unequal, heart-shaped, bent inwards.

STAM. *Filaments* 5, simple. *Anthers* roundish.

Pist. *Germen* beneath. *Styles* 2, reflected. *Summits* blunt.

S. Vess. none. *Fruit* roundish-egg-shaped, scored, divisible into 2.

Seeds 2, roundish, scored: on the other side, which is about a third part, flat.

CORIAN'DRUM. *Tourn.* 168. *Gærtn.* 22.

Cal. *Umbel* of few spokes. *Umbellules* of many. *General Involucrum* sometimes a single leaf.

Partial 3 strap-shaped leaves, going half way round. *Cup* with 5 teeth, standing out.

Bloss. *General*, irregular, radiated. *Florets in the centre* barren.

Individuals of the centre male, *petals* 5, equal, notched at the end, bent inwards. *Individuals of the circumference* hermaphrodite. *Petals* 5, heart-shaped, but bent inwards, the outermost very large, divided, those on each side of it more deeply divided.

Stam. *Filaments* 5, simple. *Anthers* roundish.

Pist. *Germen* beneath. *Styles* 2, distant. *Summits* in the florets of the circumference, knobbed.

S. Vess. none. *Fruit* globular, divisible into 2.

Seeds 2, hemispherical, concave.

SCAN'DIX. *Tourn.* 173. *Gærtn.* 23, *Chærophyllum.*

Cal. *Umbel* long, with few spokes. *Umbellules* with more, *General Involucrum* none.

Partial of 5 leaves, as long as the umbellules. *Cup* indistinct.

Bloss. *General*, irregular in its shape, radiated. *Florets in the centre* barren.

Individuals, *petals* 5, heart-shaped, bent inwards, the inner ones small, the outer one larger.

Stam. *Filaments* 5, hair-like. *Anthers* roundish.

Pist. *Germen* beneath, oblong. *Styles* 2, awl-shaped, distant, permanent, as long as the smallest petal. *Summits* in the radiated florets blunt.

S. Vess. none. *Fruit* awl-shaped, very long, divisible into 2.

Seeds 2, awl-shaped, convex and furrowed on 1 side, flat on the other.

Obs. In Scandix *odorata* the seeds are angular, and the Involucrum shedding. In S. *Pecten* the seeds are thread-shaped, with a kernel or nut at the base. In the S. *cerefolium*, the seeds are egg-awl-shaped, scored, the Involucrum green and permanent, the florets all hermaphrodite. Linn. and in the Scandix *anthriscus* the seeds are prickly, as in the genus Caucalis.

CHÆROPHYL'LUM. *Tourn.* 166. *Gærtn.* 23.
Myrrhis.

Cal. *Umbel* expanding. *Umbellules* with nearly the same number of spokes.

General Involucrum none. *Partial* of about 5 leaves, *leafits* spear-shaped, concave, reflected, nearly as long as the umbellules.

Cup indistinct.

Bloss. *General,* pretty uniform. *Florets in the centre* barren.

Individuals, petals 5, heart-shaped, bent inwards, flattish, with a sharp point bending inwards, the *outermost* petals rather the largest.

Stam. *Filaments* 5, simple, as long as the umbellules. *Anthers* roundish.

Pist. *Germen* beneath. *Styles* 2, reflected. *Summits* blunt.

S. Vess. none. *Fruit* oblong, tapering to a point, smooth, divisible into 2.

Seeds 2, oblong, growing smaller upwards, convex on one side, flat on the other.

Obs. *Seeds of the centre* often barren. Figure of the *fruit* variable. Linn.

IMPERATO'RIA. *Gærtn.* 21.

Cal. *Umbel* expanded, flat; *umbellules* unequal.

General Involucrum none. *Partial* of 1 or 2 leaves, very slender, nearly as long as the umbellule.

Cup indistinct,

Bloss. *General,* uniform, all the *florets* fertile.

Individuals, petals 5, bent in, nicked, nearly equal.

Stam. *Filaments* 5, hair-like. *Anthers* roundish.

Pist. *Germen* beneath. *Styles* 2, bent back. *Summits* blunt.

S. Vess. none. *Fruit* roundish, compressed, bulging in the middle, bordered, divisible into 2.

Seeds 2, egg-shaped, marked on the outside with 2 furrows, edged with a broad margin.

PASTINA'CA. *Tourn.* 170. *Gærtn.* 21.

Cal. *Umbel* of many spokes, flat. *Umbellules* of many spokes. *Involucrum* none.

Cup indistinct.

Bloss. *General*, uniform. *Florets* all fertile.

Individuals, petals 5, spear-shaped, entire, rolled inwards.

Stam. *Filaments* 5, hair-like. *Anthers* roundish.

Pist. *Germen* beneath. *Styles* 2, reflected. *Summits* blunt.

S. Vess. none. *Fruit* oval, compressed and flat, divisible into 2.

Seeds 2, oval, nearly flat on each side, encompassed with a border.

SMYR'NIUM. *Tourn.* 168. *Gærtn.* 22.

Cal. *Umbel* unequal, daily growing larger. *Umbellules* upright. *Involucrum* none.

Cup hardly perceptible.

Bloss. *General*, uniform. *Florets* in the centre barren.

Individuals, petals 5, spear-shaped, keeled underneath, slightly bent inwards.

Stam. *Filaments* 5, simple, as long as the petals. *Anthers* simple.

Pist. *Germen* beneath. *Styles* 2, simple. *Summits* 2, simple.

S. Vess. none. *Fruit* oblong, scored, divisible into 2.

Seeds 2, crescent-shaped, convex on one side, and marked with 3 angles, flat on the other.

ANE'THUM. *Tourn.* 164, *Fœniculum*. *Gærtn.* 23.

Cal. *Umbel* of many spokes. *Umbellules* the same. *Involucrum* none.

Cup indistinct.

Bloss. *General*, uniform. *Florets* all fertile.

Individuals, petals 5, rolled inwards, entire, very short.

Stam. *Filaments* 5, hair-like. *Anthers* roundish.

Pist. *Germen* beneath. *Styles* 2, placed close together but not very discernible. *Summits* blunt.

S. Vess. none. *Fruit* nearly egg-shaped, compressed, scored, divisible into 2.

SEEDS nearly egg-shaped, bordered, convex and scored on one side, flat on the other.

OBS. In the Anethum *Fœniculum* the seeds are without a membranaceous border.

CA'RUM. *Tourn.* 160, *Carui. Gærtn.* 23.

CAL. *Umbel* with 10 spokes, long, and often unequal. *Umbellules* crowded. *General Involucrum* often of 1 leaf. *Partial* none.

Cup hardly perceptible.

BLOSS. *General*, uniform. *Florets in the centre* barren. *Individuals* unequal. *Petals* 5, unequal, blunt, keeled, bent inwards, and notched at the end.

STAM. *Filaments* 5, hair-like, as long as the petals, shedding. *Anthers* very small, roundish.

PIST. *Germen* beneath. *Styles* 2, very small. *Summits* simple.

S. VESS. none. *Fruit* egg-oblong, scored, divisible into 2.

SEEDS 2, egg-oblong, convex on one side, and scored, flat on the other.

OBS. The central florets have sometimes neither stamens nor pistils. LINN.

PIMPINEL'LA. *Tourn.* 163, *Tragoselinum.*

CAL. *Umbel* of many spokes. *Umbellules* of still more. *Involucrums* none.

Cup not very distinguishable.

BLOSS. *General*, nearly uniform. *Florets* all fertile.

Individuals, *petals* 5, nearly equal, heart-shaped, but bent inwards.

STAM. *Filaments* 5, simple, longer than the petals. *Anthers* roundish.

PIST. *Germen* beneath. *Styles* 2, very minute. *Summits* nearly globular.

S. VESS. none. *Fruit* egg-oblong, divisible into two.

SEEDS 2, oblong, narrower towards the top, flat on one side, convex and scored on the other.

OBS. In the Pimpinella *dioica*, the petals are not notched at the end; the male and the hermaphrodite flowers are on distinct plants. LINN.

A'PIUM. *Tourn.* 160. *Gærtn.* 22.

CAL. *Umbel* with few spokes. *Umbellules* with many. *General Involucrum* none; or else of one or more leaves. *Partial* the same.
Cup indistinct.

BLOSS. *General*, uniform. *Florets* almost all fertile.
Individuals, *petals* circular, equal, bent inwards.

STAM. *Filaments* 5, simple. *Anthers* roundish.

PIST. *Germen* beneath. *Styles* 2, reflected. *Summits* blunt.

S. VESS. none. *Fruit* egg-shaped, scored, divisible into 2.

SEEDS 2, egg-shaped, scored on one side, flat on the other.

ÆGOPO'DIUM. *Fl. dan.* 670.

CAL. *Umbel* of many spokes, convex. *Umbellules* the same, but flat. *Involucrums* none.
Cup hardly discernible.

BLOSS. *General*, uniform. *Florets* all fertile.
Individuals, *petals* 5, inversely egg-shaped, equal, concave, bent inwards at the point.

STAM. *Filaments* 5, simple, twice as long as the petals. *Anthers* roundish.

PIST. *Germen* beneath. *Styles* 2, simple, upright, as long as the petals. *Summits* roundish.

S. VESS. none. *Fruit* egg-oblong, scored, divisible into 2.

SEEDS 2, egg-oblong, convex and scored on one side, flat on the other.

TRIGYNIA.

VIBUR'NUM. *Tourn.* 376, *Opulus*, & 377. *Gærtn.* 27.

CAL. *Cup* with 5 divisions, superior, very small, permanent.

BLOSS. 1 *petal*, bell-shaped, with 5 clefts. *Segments* blunt, reflected.

STAM. *Filaments* 5, awl-shaped, as long as the blossom. *Anthers* roundish.

PIST. *Germen* beneath, roundish. *Style* none, but instead thereof a turban-shaped gland. *Summits* 3.

S. VESS. *Berry* roundish, of 1 cell.

SEED single, roundish, hard as bone.

SAMBU'CUS. *Tourn.* 376. *Gærtn.* 27.

CAL. *Cup* superior, of 1 leaf, very small, with 5 divisions, permanent.

Bloss. 1 petal, wheel-shaped, but concave, with 5 clefts, blunt. *Segments* reflected.

Stam. *Filaments* 5, awl-shaped, as long as the blossom. *Anthers* roundish.

Pist. *Germen* beneath, egg-shaped, blunt. *Style* none, but instead thereof a bellying gland. *Summits* 3, blunt.

S. Vess. *Berry* roundish, of 1 cell.

Seeds 3, convex on 1 side, angular on the other.

STAPHYLE'A. *Tourn.* 386, *Staphyllodendron. Gærtn.* 69.

Cal. *Cup* with 5 divisions, concave, roundish, coloured, nearly as large as the blossom.

Bloss. *Petals* 5, oblong, upright, resembling the cup.

Nectary concave, urn-shaped, situated at the bottom of the flower, upon the receptacle of the fruit.

Stam. *Filaments* 5, oblong, upright, as long as the cup. *Anthers* simple.

Pist. *Germen* rather thick, with 3 divisions. *Styles* 3, simple, somewhat longer than the stamens. *Summits* blunt, contiguous.

S. Vess. *Capsules* 3, bladder-shaped, flaccid, joined by seams lengthwise, tapering at the points, opening inwardly.

Seeds 2, hard as bone, somewhat globular, obliquely tapering, with a circular pit at the side, near the point.

Obs. The S. *pinnata* has 3 pistils, but only 2 seeds. Linn.

TA'MARIX. *Gærtn.* 61.

Cal. *Cup* with 5 divisions, upright, blunt, permanent, but half the length of the blossom.

Bloss. *Petals* 5, egg-shaped, concave, blunt, expanding.

Stam. *Filaments* 5, hair-like. *Anthers* roundish.

Pist. *Germen* tapering to a point. *Style* none. *Summits* 3, oblong, feathered, rolled back.

S. Vess. *Capsule* oblong, tapering to a point, 3-cornered, longer than the cup, of 1 cell and 3 valves.

Seeds numerous, very small, downy.

CORRIGIO'LA. *Gærtn.* 75.

Cal. *Cup* permanent, about the size of the blossom, of 5 leaves; *leafits* egg-shaped, concave, expanding, membranaceous at the edge.

Bloss. *Petals* 5, egg-shaped, expanding, scarcely larger than the cup.

Stam. *Filaments* 5, awl-shaped, small. *Anthers* simple.

Pist. *Germen* egg-shaped, 3-cornered. *Style* none. *Summits* 3, blunt.

S. Vess. A dry berry; egg-shaped, but somewhat 3-cornered, within the closed cup.

Seed single, roundish, but with 3 furrows, connected by a thread which rises from the bottom of the seed-vessel.

ALSI'NE. *Curt.* 1. 12.

Cal. *Cup* 5 leaves; *leafits* concave, oblong, tapering to a point.

Bloss. *Petals* 5, equal, longer than the cup.

Stam. *Filaments* 5, hair-like. *Anthers* roundish.

Pist. *Germen* nearly egg-shaped. *Styles* 3, thread-shaped. *Summits* blunt.

S. Vess. *Capsule* egg-shaped, of 1 cell, and 3, or 6 valves, covered by the cup.

Seeds numerous, roundish.

Obs. In A. *media* the stamens soon fall off, so that it is not unusual to find flowers with fewer than 5. Linn.

TETRAGYNIA.

PARNA'SSIA. *Gærtn.* 60.

Cal. *Cup* with 5 divisions, permanent. *Segments* oblong, expanding.

Bloss. *Petals* 5, nearly circular, scored, concave, expanding. *Nectaries* 5, each being a concave heart-shaped substance, furnished with 13 rays set along the edge, gradually taller, and each terminated by a little globe, (or with 3 divisions, rays equal, each bearing a globule.)

Stam. *Filaments* 5, awl-shaped. *Anthers* depressed, fixed sidewise to the filaments.

Pist. *Germen* egg-shaped, large. *Style* none, but instead thereof an open hole. *Summits* 4, blunt, permanent, growing larger as the seed ripens.

S. Vess. *Capsule* egg-shaped, but with 4 angles, 1 cell, and 4 valves. *Receptacle* in 4 parts, growing to the valves.

Seeds numerous, oblong.

Obs. The nectary gives the essential character. Linn.

PENTAGYNIA.

STA'TICE. *Tourn.* 177. *Gærtn.* 44.

CAL. *Common Cup* different in different species.
Proper Cup 1 leaf, funnel-shaped. *Tube* narrow. *Border* entire, plaited, skinny.

BLOSS. funnel-shaped. *Petals* 5, united, and narrower at the base, broader upwards, blunt, expanding,

STAM. *Filaments* 5, awl-shaped, shorter than the blossom, fixed to the claws of the petals. *Anthers* fixed sidewise to the filaments.

PIST. *Germen* extremely small. *Styles* 5, thread-shaped, distant. *Summits* acute.

S. VESS. *Capsule* oblong, rather cylindrical, membranaceous, with 5 sharp points, 1 cell, without valves, inclosed in the shrivelled blossom, and that again in the closed cup.

SEED single, oblong, hanging to a long thread.

OBS. The Statice *Armeria* has its flowers in a roundish head, inclosed by a triple common calyx: In the S. *Limonium* they are disposed in an oblong form, with a tiled common calyx. LINN.

LI'NUM. *Tourn.* 176.

CAL. *Cup* 5 leaves, small, spear-shaped, upright, permanent.

BLOSS. funnel-shaped. *Petals* 5, oblong, large, blunt, gradually expanding more, and growing broader upwards.

STAM. *Filaments* 5, awl-shaped, upright, as long as the cup, (alternating with these are the rudiments of 5 more.) *Anthers* simple, arrow-shaped.

PIST. *Germen* egg-shaped. *Styles* 5, thread-shaped, upright, as long as the stamens. *Summits* simple, reflected.

S. VESS. *Capsule* globular, with 5 imperfect angles, 10 cells, and 10 valves, opening at the top. *Partitions* membranaceous, very thin, connecting the valves.

SEEDS solitary, egg-shaped, but flatted, tapering to a point, glossy.

OBS. In many species, (perhaps in all) the filaments are united at the base. In the Linum *Radiola*, there are only 4 stamens, 4 pistils, &c. LINN.

DRO'SERA. *Tourn.* 127, *Ros Solis.* *Gærtn.* 61.

Cal. *Cup* 1 leaf, with 5 clefts, acute, upright, permanent.

Bloss. funnel-shaped. *Petals* 5, nearly egg-shaped, blunt, somewhat larger than the cup.

Stam. *Filaments* 5, awl-shaped, as long as the cup. *Anthers* small.

Pist. *Germen* roundish. *Styles* 5, simple, as long as the stamens. *Summits* simple.

S. Vess. *Capsule* nearly egg-shaped, of 1 cell, with 3 or 5 valves at the top.

Seeds numerous, very small, nearly egg-shaped, rough.

Obs. D. *rotundifolia*, and D. *longifolia*, have 6 styles, and D. *anglica* 8.

SIBBA'LDIA. *Gærtn.* 73.

Cal. *Cup* 1 leaf, with 10 shallow clefts, upright at the base, permanent. *Segments* alternately narrower, half spear-shaped, equal, expanding.

Bloss. *Petals* 5, egg-shaped, standing on the cup.

Stam. *Filaments* 5, hair-like, shorter than the petals, standing on the cup. *Anthers* small, blunt.

Pist. *Germens* 5, egg-shaped, very short. *Styles* as long as the stamens, and standing upon the sides of the germens. *Summits* somewhat globular.

S. Vess. none. The cup closes upon the seeds.

Seeds 5, longish.

Obs. The pistils sometimes, though very rarely, are found 10 in number, though other flowers on the same plant have only 5. Linn.

POLYGYNIA.

MYOSU'RUS. *Gærtn.* 74.

Cal. *Cup* 5 leaves. *Leafits* half spear-shaped, blunt, reflected, coloured, deciduous, joined together above the base.

Bloss. *Petals* 5, very small, shorter than the cup, tubular at the base, opening obliquely inwards.

Stam. *Filaments* 5, (or more,) as long as the cup. *Anthers* oblong, upright.

Pist. *Germens* numerous, sitting upon the receptacle, forming an oblong cone. *Styles* none. *Summit* simple.

S. Vess. none. *Receptacle* very long, shaped like a style, covered by the seeds, which are laid one over another like tiles.

Seeds numerous, oblong, tapering to a point.

Obs. The number of stamens very variable. This genus is nearly related to the Ranunculus, Linnæus; who sometimes considered the petals as so many nectaries resembling petals.

CLASS VI.

HEXANDRIA.

THE flowers of this class contain 6 stamens, all of the *same length,* whereas in the Tetradynamia class, the stamens, though 6 in number, are *unequal in length,* 4 of them being long, and 2 of them short; but as the difference in their length is not always very obvious, it may further be remarked, that in the Hexandria class, *none* of the flowers have 4 petals, as is the case with *all* those of the class Tetradynamia.

The Bulbous Roots in this class are some of them noxious, as those of the Narcissus, the Hyacynthus, and the Fritillaria; others are corrosive, as Allium, but by roasting or boiling, they lose great part of their acrimony.

HEXANDRIA. (6 Stamens.)

Monogynia. (1 Pistil.)

Galanthus.
Leucojum.
Narcissus.
Allium.
Fritillaria.
Tulipa.
Ornithogalum.
Scilla.
Anthericum.
Narthecium.
Asparagus.
Convallaria.
Hyacinthus.
Acorus.
Tamus.
Juncus.
Berberis.
Frankenia.
Peplis.

TRIGYNIA. (3 Pistils.)

Rumex.	*Tofieldia.*	*Triglochin.*
Colchicum.		

HEXAGYNIA. (6 Pistils.)

Aristolochia.

POLIGYNIA. (many Pistils.)

Alisma.

MONOGYNIA.

GALAN'THUS. *E. bot.* 19.

CAL. *Sheath* oblong, blunt, compressed, shrivelling, opening at the flat side.

BLOSS. *Petals* 3, oblong, blunt, concave, limber, equal, standing open.

Nectary cylindrical, nearly half as long as the petals, composed of 3 leaves resembling petals, parallel, blunt, notched at the end.

STAM. *Filaments* 6, hair-like, very short. *Anthers* oblong, approaching, tapering, and ending in a bristle.

PIST. *Germen* globular, beneath. *Style* thread-shaped, longer than the stamens. *Summits* simple.

S. VESS. *Capsule* nearly globular, with 3 blunt corners, 3 cells, and 3 valves.

SEEDS many, globular.

OBS. *Sheath* cloven at the end.

LEUCO'JUM. *Tourn.* 208, *Narcisso-leucojum.*

CAL. *Sheath* oblong, blunt, compressed, opening on the flat side, shrivelling.

BLOSS. Bell-shaped, expanding. *Petals* 6, egg-shaped, flat, united at the base, thicker and stiffer at the ends.

STAM. *Filaments* 6, like bristles, very short. *Anthers* oblong, blunt, 4-sided, upright, distant.

Pist. *Germen* roundish, beneath. *Style* club-shaped, blunt. *Summit* bristle-shaped, upright, acute, longer than the stamens.

S. Vess. *Capsule* turban-shaped, of 3 cells and 3 valves.

Seeds numerous, roundish.

NARCIS'SUS. *Tourn.* 185.

Cal. *Sheath* oblong, blunt, compressed, opening upon the flat side, shrivelling.

Bloss. *Petals* 6, egg-shaped, tapering to a point, flat, fixed on the outside above the base of the tube of the nectary.

Nectary 1 leaf, cylindrical below, funnel-shaped, upwards, border coloured.

Stam. *Filaments* 6, awl-shaped, fixed to the tube of the nectary, but shorter than it. *Anthers* rather long.

Pist. *Germen* beneath, roundish, with 3 blunt corners. *Style* thread-shaped, longer than the stamens. *Summit* with 3 clefts, concave, blunt.

S. Vess. *Capsule* roundish, bluntly 3-cornered, with 3 cells and 3 valves.

Seeds numerous, globular, with little appendages.

AL'LIUM. *Tourn.* 206. *Gærtn.* 16.

Cal. *Sheath* common to several flowers, roundish, shrivelling.

Bloss. *Petals* 6, oblong.

Stam. *Filaments* 6, awl-shaped, generally as long as the blossom. *Anthers* oblong, upright.

Pist. *Germen* superior, short, somewhat 3-cornered, the corners marked by a grooved line. *Style* simple. *Summit* acute.

S. Vess. *Capsule* very short, broad, of 3 lobes, 3 cells, and 3 valves,

Seeds many, roundish.

Obs. In some species every other stamen is broader, forked at the end, and the *Anther* fixed in the fork. Linn.

FRITILLA'RIA. *Tourn.* 201. *Gærtn.* 17.

Cal. *Cup* none.

Bloss. Bell-shaped, expanding at the base. *Petals* 6, oblong, parallel.

Nectary a hollow in the base of each petal.

STAM. *Filaments* 6, awl-shaped, approaching the style, as long as the blossom. *Anthers* 4-cornered, oblong, upright.

PIST. *Germen* oblong, 3-sided, blunt. *Style* simple, longer than the stamens. *Summit* with 3 clefts, expanding, blunt.

S. VESS. *Capsule* oblong, blunt, with 3 lobes, 3 cells, and 3 valves.

SEEDS many, flat, outwardly semi-circular, placed in 2 rows.

OBS. In F. *meleagris* the nectary is oblong, and the S. vess. smooth. LINN.

TU'LIPA. *Tourn.* 199, & 200. *Gærtn.* 17.

CAL. none.

BLOSS. Bell-shaped. *Petals* 6, egg-oblong, concave, upright.

STAM. *Filaments* 6, awl-shaped, very short. *Anthers* oblong, 4-cornered, upright, distant.

PIST. *Germen* large, oblong, cylindrical, but with three blunt corners. *Style* none. *Summit* 3-lobed, triangular; angles protuberating, cloven, permanent.

S. VESS. *Capsule* 3-cornered, with 3 cells and 3 valves. *Valves* egg-shaped, fringed at the edge.

SEEDS numerous, flat, semi-circular, lying one upon another in double rows, but kept asunder by intervention of flocks of the same shape.

ORNITHO'GALUM. *Tourn.* 203. *Gærtn.* 17.

CAL. *Cup* none.

BLOSS. *Petals* 6, spear-shaped, upright below the middle, but expanding and flat above, permanent, but fading.

STAM. *Filaments* 6, upright, alternately broader at the base, shorter than the blossom. *Anthers* simple.

PIST. *Germen* angular. *Style* awl-shaped, permanent. *Summit* blunt.

S. VESS. *Capsule* roundish, angular, with 3 cells, and 3 valves.

SEEDS many, roundish.

OBS. The *Filaments* in some species are upright and flat, every other filament having 3 points, and the *Anther* fixed upon the middle point. In other species these alternate filaments are undivided.

SCIL'LA. *Tourn.* 196, *Lilio-Hyacinthus.*

CAL. *Cup* none.
BLOSS. *Petals* 6, egg-shaped, greatly expanding, deciduous.
STAM. *Filaments* 6, awl-shaped, half as long as the petals. *Anthers* oblong, fixed sidewise.
PIST. *Germen* roundish. *Style* simple, as long as the stamens, falling off. *Summit* simple.
S. VESS. *Capsule* nearly egg-shaped, smooth, with 3 furrows, 3 cells, and 3 valves.
SEEDS several, roundish.

ANTHER'ICUM. *Tourn.* 193, *Phalangium, Gærtn.* 16.

CAL. *Cup* none.
BLOSS. *Petals* 6, oblong, blunt, greatly expanded.
STAM. *Filaments* 6, awl-shaped, upright. *Anthers* small, with 4 furrows, fixed sidewise to the filaments.
PIST. *Germen* with 3 corners, but slightly marked. *Style* simple, as long as the stamens. *Summit* blunt, 3-cornered.
S. VESS. *Capsule* egg-shaped, smooth, with 3 furrows, 3 cells, and 3 valves.
SEEDS numerous, angular.

OBS. The Anthericum *calyculatum* has a calyx with 3 teeth, and 3 pistils, but without any distinct styles. LINN.

NARTHE'CIUM. *(Moehr. and Huds.)*

CAL. none.
BLOSS. *Petals* 6, equal, spear-shaped, acute, widely expanding, permanent.
STAM. *Filaments* 6, awl-shaped, woolly. *Anthers* small, fixed sidewise.
PIST. *Germen* 3-cornered. *Style* none. *Summit* blunt.
S. VESS. *Capsule* egg-shaped, acute, 3-cornered, with 3 cells, and 3 valves.
SEEDS numerous, chaff-like, (cylindrical, tapering to a point each way. ST.)

OBS. This is the Anthericum *ossifragum* of Linnæus, who was well aware that it did not fall in properly with some of its congeners, but not being satisfied how to make the necessary reforms which this and other species of the same genus required, he suffered it still to stand as an Anthericum. Moehringius, and after him Mr. Hudson, made it a distinct genus. It differs from the Anthericum in having a permanent blossom, woolly filaments, cylindrical seeds tapering to a point each way, and ending in a long thread-like appendage.

ASPAR'AGUS. *Tourn.* 154. *Gærtn.* 16.

Cal. *Cup* none.

Bloss. *Petals* 6, oblong, permanent, connected by the claws into an upright tube. The 3 inner petals alternate, reflected at the top.

Stam. *Filaments* 6, thread-shaped, standing on the petals, upright, shorter than the blossom. *Anthers* roundish.

Pist. *Germen* turban-shaped, with 3 corners. *Style* very short. *Summit* a prominent point.

S. Vess. *Berry* globular, with 3 cells and a dot at the end.

Seeds 2, smooth, roundish, but angular on the inside.

Obs. It is not easy to say whether the blossom is composed of 1 petal or of 6. The Flowers are pendant, though the pistil is very short. Flowers either male or female, or hermaphrodite. Seeds from 1 to 3.

CONVALLA'RIA. *Tourn.* 14. *Lil. convall, & Polygonatum. Gærtn.* 16.

Cal. *Cup* none.

Bloss. 1 *Petal*, bell-shaped, smooth. *Border* with 6 clefts, *segments* blunt, expanding, and reflected.

Stam. *Filaments* 6, awl-shaped, standing on the petal, shorter than the blossom. *Anthers* oblong, upright.

Pist. *Germen* globular. *Style* thread-shaped, longer than the stamens. *Summit* blunt, 3-cornered.

S. Vess. *Berry* globular, with 1 cell, but with 3 divisions at the base; spotted before it is ripe.

Seeds 1 or 2, roundish.

Obs. In Convallaria *maialis* the blossom is globular, but open and bell-shaped at its mouth; in the other British species it is tubular below and bell-shaped upwards, and in all the species the unripe berry is spotted.

HYACIN'THUS. *Tourn.* 180. *Gærtn.* 12.

CAL. *Cup* none.

BLOSS. 1 petal, bell-shaped. *Border* with 6 clefts, reflected.

Nectary, 3 pores filled with honey, at the point of the germen.

STAM. *Filaments* 6, awl-shaped, rather short. *Anthers* approaching.

PIST. *Germen* roundish, but with 3 edges, and 3 furrows. *Style* simple, shorter than the blossom. *Summit* blunt.

S. VESS. *Capsule* roundish, but with 3 corners, 3 cells and valves.

SEEDS 2 for the most part, roundish.

OBS. In the Hyacinthus *non-scriptus* the blossom is tubular, but expanding at the mouth, and its segments so deeply divided that it is not easy to determine whether it is formed of one, or of six petals; and the 3 nectariferous pores are not to be found on the germen; so that it rather ranks with the Scilla than with the Hyacinthus, only that the blossom in the former is deciduous, in the latter permanent.

AC'ORUS. *Leers* 13. *f.* 12.

CAL. *Spike-stalk* cylindrical, undivided, covered by the florets. *Sheath* none. *Cup* none.

BLOSS. *Petals* 6, blunt, concave, flexible, thicker upwards, and almost lopped.

STAM. *Filaments* 6, rather thick, something longer than the petals. *Anthers* thick, terminating, double, connected.

PIST. *Germen* bulging, oblong, as long as the stamens. *Style* none. *Summit* a prominent point.

S. VESS. *Capsule* short, triangular, tapering each way, blunt, cells 3.

SEEDS several, egg-oblong.

TA'MUS. *Tourn.* 28, *Tamnus.*

Male flowers.

CAL. *Cup* with 6 divisions. *Leafits* egg-spear-shaped, expanding towards the top.

BLOSS. none.

STAM. *Filaments* 6, simple, shorter than the cup. *Anthers* upright.

Female flowers.

Cal. *Cup* 1 leaf, with 6 divisions, bell-shaped, expanding. *Segments* spear-shaped, superior, deciduous.

Bloss. *Petals* none.

Nectary an oblong dot at the base of each segment of the cup, on the inner side.

Pist. *Germen* beneath, egg-oblong, large, smooth. *Style* cylindrical, as long as the cup. *Summits* 3, reflected, notched at the end, acute.

S. Vess. *Berry* egg-shaped, with 2 cells.

Seeds 2, globular.

JUN'CUS. *Tourn.* 127. *Gærtn.* 15.

Cal. *Husk* 2 valves. *Cup* 6 leaves. *Leafits* oblong, tapering to a point, permanent.

Bloss. none, unless we consider the young and coloured cup as such.

Stam. *Filaments* 6, hair-like, very short. *Anthers* oblong, upright, as long as the cup.

Pist. *Germen* 3-cornered, tapering to a point. *Style* short, thread-shaped. *Summits* 3, long, thread-shaped, woolly, bent inwards.

S. Vess. *Capsule* covered, 3-cornered, with 1 or 3 cells, and 3 valves.

Seeds several, roundish.

Obs. *Husks* brown, or approaching to black, where it is not expressed to be otherwise. The I. *conglomeratus*, and I. *effusus* have only 3 stamens in each flower.

BER'BERIS. *Tourn.* 385. *Gærtn.* 42.

Cal. *Cup* 6 leaves, standing open; *leafits* egg-shaped, narrowest at the base, concave, coloured, deciduous, alternately smaller.

Bloss. *Petals* 6, roundish, concave, upright, but expanding, scarcely larger than the cup.

Nectary 2, roundish, coloured substances, growing to the base of each petal.

Stam. *Filaments* 6, upright, compressed, blunt, opposite the petals. *Anthers* 2, adhering to each side of the filaments, at the end.

Pist. *Germen* cylindrical, as long as the stamens. *Style* none. *Summit* round and flat, broader than the germen, encompassed by a thin edged border.

S. Vess. *Berry* cylindrical, blunt, dimpled, with 1 cell.

Seeds 2 or 3, oblong, cylindrical, blunt.

Obs. There is a perforation at the top of the berry. (Gærtn.)

FRANKE'NIA. *E. bot.* 205.

Cal. *Cup* 1 leaf, nearly cylindrical, 10-cornered, permanent. *Rim* with 5 acute teeth, standing out.

Bloss. *Petals* 5, the *claws* as long as the cup. *Border* flat, *limbs* circular and expanding.

Nectary a channelled claw, tapering to a point fixed to each claw of the petals.

Stam. *Filaments* 6, as long as the cup. *Anthers* roundish, double.

Pist. *Germen* oblong, superior. *Style* simple, as long as the stamens. *Summits* 3, oblong, upright, blunt.

S. Vess. *Capsule* oval, of 1 cell, and 3 valves.

Seeds many, egg-shaped, very small.

PEP'LIS. *Gærtn.* 51.

Cal. *Cup* 1 leaf, bell-shaped, very large, permanent. *Rim* with 12 teeth, every other tooth bent back.

Bloss. *Petals* 6, egg-shaped, very minute, fixed to the mouth of the cup.

Stam. *Filaments* 6, awl-shaped, short. *Anthers* roundish.

Pist. *Germen* egg-shaped. *Style* very short. *Summit* round and flat.

S. Vess. *Capsule* heart-shaped. *Cells* 2, partition opposite.

Seeds many, 3-cornered, small.

Obs. In the greater number of the flowers, of one and the same plant, the blossom is altogether wanting.

TRIGYNIA.

RU'MEX. *Tourn.* 287, *acetosa.*

Cal. *Cup* 3 leaves. *Leafits* blunt, reflected, permanent.

Bloss. *Petals* 3, egg-shaped, not unlike the cup, but larger, approaching, permanent.

Stam. *Filaments* 6, hair-like, very short. *Anthers* upright, double.

Pist. *Germen* turban-shaped, but 3-cornered. *Styles* 3, hair-like, reflected, standing out in the spaces between the approaching petals. *Summits* large, jagged.

S. Vess. none. The blossom approaching, and becoming 3-cornered, contains the seed.

Seed single, 3-sided.

Obs. Rumex *digynus* has a third less in number of all the parts of fructification, except the stamens. R. *acetosa* and R. *acetosella* have the stamens and pistils in different flowers and on distinct plants. In some species a callous grain or bead is formed upon the outside of the petals, when they close like valves upon the seed. Linn. In which state they are called valves.

TOFIEL'DIA. *Fl. dan.* 36. *(Huds.)*

Cal. none.

Bloss. *Petals* 6, equal, oblong, blunt, concave, permanent.

Stam. *Filaments* 6, awl-shaped, smooth, as long as the petals. *Anthers* small, roundish, fixed sidewise.

Pist. *Germen* 3-cornered. *Styles* 3, awl-shaped, expanding. *Summits* blunt.

S. Vess. *Capsule* roundish, rather 3-cornered, with 3 cells and 6 valves.

Seeds numerous, oblong, nearly 3-cornered, small.

Obs. This is the Anthericum *calyculatum* of Linnæus, who hinted the necessity of forming a distinct genus of this and the A. *ossifragum*, but Mr. Hudson separated it from both, and I think with propriety; for though it has the habit of the latter, the structure of the seed-vessel will not allow them to associate in an artificial system.

TRIGLO'CHIN. *Tourn.* 142, *Juncago.*

Cal. *Cup* 3 leaves; *leafits* roundish, blunt, concave, deciduous.

Bloss. *Petals* 3, egg-shaped, concave, blunt, resembling the cup.

Stam. *Filaments* 6, very short. *Anthers* 6, shorter than the petals.

Pist. *Germen* large. *Styles* none. *Summits* 3 or 6, reflected, feathered.

S. Vess. *Capsule* egg-oblong, blunt, with as many cells as summits, opening at the base. *Valves* acute.

Seeds solitary, oblong.

CO'LCHICUM. *Tourn.* 181, 182. *Gærtn.* 18.

CAL. none, *(except some scattered sheaths.)*

BLOSS. with 6 divisions. *Tube* angular, extending down to the root. *Segments* of the border spear-egg-shaped, concave, upright.

STAM. *Filaments* 6, awl-shaped, shorter than the blossom. *Anthers* oblong, with 4 valves, fixed sidewise to the filaments.

PIST. *Germen* buried within the root. *Styles* 3, thread-shaped, as long as the stamens. *Summits* reflected, channelled.

S. VESS. *Capsule* of 3 lobes, connected on the inside by a seam, blunt, with 3 cells, opening inwards at the seams.

SEEDS many, nearly globular, wrinkled.

HEXAGYNIA.

ARISTOLO'CHIA. *Tourn.* 71. *Gærtn.* 14.

CAL. *Cup* none.

BLOSS. *Petal* 1, tubular, irregular, the base bellying, nearly globular, with protuberances. *Tube* oblong, cylindrical, but 6-sided. *Border* spreading, extending downwards into a long tongue.

STAM. *Filaments* none. *Anthers* 6, growing to and underneath the summits, with 4 cells in each.

PIST. *Germen* oblong, angular, beneath. *Style* hardly any. *Summit* nearly globular, with 6 divisions, concave.

S. VESS. *Capsule* large, with 6 corners and 6 cells.

SEEDS many, flatted, fixed sidewise.

OBS. The ripe capsule is either long or roundish. LINN.

POLYGYNIA.

ALIS'MA. *Tourn.* 132, *Damasonium.*

CAL. *Cup* 3 leaves; *leafits* egg-shaped, concave, permanent.

BLOSS. *Petals* 3, circular, large, flat, greatly expanded.

STAM. *Filaments* 6, awl-shaped, shorter than the blossom. *Anthers* roundish.

PIST. *Germens* more than 5. *Styles* simple. *Summits* blunt.

S. VESS. *Capsule* compressed.

SEEDS solitary, small.

OBS. The Alisma *Damasonium* has 6 pistils, and 6 capsules, tapering to a point. The A. *natans*, has generally 8. LINN. The A. *plantago* has from 12 to 18 capsules, and as many pistils.

CLASS VII.

HEPTANDRIA.

(7 Stamens.)

Monogynia. (1 Pistil.)

TRIENTA'LIS. *Cal.* 7 leaves. *Bloss.* flat, with 7 divisions. *Caps.* 1-celled.

TRIENTA'LIS. *Gærtn.* 50.

Cal. *Cup* 7 leaves; *leafits* spear-shaped, tapering to a point expanding, permanent.

Bloss. starry, flat, of 1 petal with 7 divisions, slightly adhering at the base. *Segments* egg-spear-shaped.

Stam. *Filaments* 7, hair-like, growing on the claws of the blossom, standing wide, as long as the cup. *Anthers* simple.

Pist. *Germen* globular. *Style* thread-shaped, as long as the stamens. *Summit* a knob.

S. Vess. *Berry* not unlike a capsule, dry, globular, of 1 cell, coat very thin, opening by various seams.

Seeds several, angular. *Receptacle* large, hollowed out to receive the seeds.

Obs. Though 7 is commonly the prevailing number in this genus, it is not always so. The fruit is a dry berry, not opening at valves like a capsule. Linn. Stamens 5, 6, or 7, with as many segments in the calyx. (Pallas.)

CLASS VIII.

OCTANDRIA.

(8 Stamens.)

MONOGYNIA. (1 Pistil.)

Epilobium.
Oenothera.
Acer.
Chlora.
Vaccinium.
Erica.
Populus.
Daphne.

DIGYNIA. (2 Pistils.)

Corylus.

TRIGYNIA. (3 Pistils.)

Polygonum.

TETRAGYNIA. (4 Pistils.)

Paris.
Quercus.
Adoxa.
Rhodiola.
Elatine.
Myriophyllum.

MONOGYNIA.

EPILO'BIUM. *Tourn.* 157, *Chamænerion. Gærtn.* 31.

CAL. *Cup* 1 leaf, with 4 divisions, superior. *Segments* oblong, tapering to a point, coloured, deciduous.

BLOSS. *Petals* 4, circular, expanding, broadest on the outer part, notched at the end, growing to the divisions of the cup.

STAM. *Filaments* 8, awl-shaped, alternately shorter. *Anthers* oval, compressed, blunt.

PIST. *Germen* beneath, cylindrical, very long. *Style* thread-shaped. *Summit* with 4 clefts, thick, blunt, rolled back.

S. Vess. *Capsule* very long, cylindrical, scored with 4 cells, and 4 valves. *Partitions* opposite the valves.

Seeds numerous, oblong, crowned with down. *Receptacle* very long, 4-cornered, loose, limber, coloured, connected with the partitions, containing the seeds in a double row.

Obs. In some species the stamens and pistils are upright, in others they lean to the lower side of the blossom. Linn.

OENO'THERA. *Tourn.* 156. *Onagra.*

Cal. *Cup* 1 leaf, superior, deciduous. *Tube* cylindrical, upright, long, deciduous. *Border* 4-clefted; *segments* oblong, acute, rather bending outwards.

Bloss. *Petals* 4, inversely heart-shaped, flat, inserted into the divisions of the calyx, as long as the segments of the calyx.

Stam. *Filaments* 8, awl-shaped, bowed inwards, placed on the mouth of the calyx, shorter than the blossom. *Anthers* oblong, fixed by the side.

Pist. *Germen* cylindrical, beneath. *Style* thread-shaped, the length of the stamens. *Summit* 4-clefted, thick, blunt, bent back rather angularly.

S. Vess. *Capsule* cylindrical, 4-cornered, with 4 cells, and 4 valves.

Seeds many, angular, naked. *Receptacle* columnar, loose, 4-cornered.

A'CER. *Tourn.* 386.

Hermaphrodite flowers.

Cal. *Cup* 1 leaf, with 5 clefts, acute, coloured, flat and entire at the base, permanent.

Bloss. *Petals* 5, egg-shaped, broadest towards the end, blunt, scarcely larger than the cup, expanding.

Stam. *Filaments* 8, awl-shaped, short. *Anthers* simple. *Pollen* cross-shaped.

Pist. *Germen* compressed, nearly buried in a large perforated convex receptacle. *Style* thread-shaped, daily growing longer. *Summits* 2, tapering to a point, slender, bent back.

S. Vess. *Capsules* as many as the summits, (2 or 3,) united at the base, roundish, compressed, each terminated by a very large membranaceous wing.

SEEDS solitary, roundish.

Male flowers.

CAL. BLOSS. STAMENS, as above.

PIST. *Germen* none. *Style* none. *Summit* cloven.

OBS. At the first opening of the flower the *Summit* only makes its appearance, and after some days the *Style* shoots out. In Acer *Pseudo-Platanus* the blossom is hardly distinct from the cup, and the stamens are long.

In some flowers in the same umbel, the lower ones have anthers which do not shed their pollen; but the pistils bring forth perfect fruit; and the upper ones have anthers which do shed their pollen, but the pistils fall off and perish. LINN.

CHLO'RA. *E. bot.* 60.

CAL. *Cup* 8 leaves, permanent. *Leaves* strap-shaped, standing open.

BLOSS. 1 petal, salver-shaped. *Tube* shorter than the cup, inclosing the germen. *Border* with 8 divisions. *Segments* spear-shaped, longer than the tube, (lapping over each other.)

STAM. *Filaments* 8, (awl-shaped,) very short, fixed to the mouth of the tube. *Anthers* strap-shaped, upright, shorter than the segments of the blossom.

PIST. *Germen* egg-oblong. *Style* thread-shaped, as long as the tube. *Summits* 4, oblong, cylindrical.

S. VESS. *Capsule* egg-oblong, of 1 cell, somewhat flatted, with 2 furrows, 2 valves; the sides of the valves bowed inwards.

SEEDS numerous, very small.

OBS. Nearly allied to the Gentians. LINN.—In Chlora *perfoliata* the segments of the blossom lap over each other; the filaments are awl-shaped, sometimes 9 in number, with 9 leafits to the cup; and the summits are shaped like a horse-shoe.

VACCIN'IUM. *Tourn.* 377, *Vitis idæa*; 431, *Oxycoccus.* *Gærtn.* 28.

CAL. *Cup* very small, superior, permanent.

BLOSS. 1 petal, bell-shaped, with 4 clefts. *Segments* rolled backwards.

STAM. *Filaments* 8, simple, fixed to the receptacle. *Anthers* with 2 horns, opening at the point, and furnished with 2 expanding awns fixed to the back.

PIST. *Germen* beneath. *Style* simple, longer than the stamens. *Summit* blunt.

S. Vess. *Berry* with 4 cells, globular, with a hollow dimple.

Seeds few, small.

Obs. In some species, all the parts of fructification are increased 1-4th in number. The calyx in Vaccinium *myrtillus* is very entire, in most of the rest with 4 clefts. The new blown *blossom* is hardly divided, but in the V. *oxycoccus* it is rolled back to the base, or rather 4-petaled, and the stamens are sometimes 10.

ERI'CA. *Tourn.* 373. *a.* *Gærtn.* 63.

Cal. *Cup* with 4 leaves; *leafits* egg-oblong, permanent.

Bloss. 1 petal, bell-shaped, with 4 clefts, often bellying.

Stam. *Filaments* 8, hair-like, standing on the receptacle. *Anthers* cloven at the point.

Pist. *Germen* roundish. *Style* thread-shaped, straight, longer than the stamens. *Summit* resembling a little crown, with 4 clefts, and 4 edges.

S. Vess. *Capsule* roundish, covered, smaller than the cup, with 4 cells and 4 valves.

Seeds numerous, very small.

Obs. In some species the cup is double. The figure of the blossom varies between egg-shaped and oblong. The stamens in some species are longer, and in others shorter than the blossom. The anthers in some are notched at the end, in others they are furnished with 2 awns. Linn.—The summit also is different in different species. (Reich.)

POP'ULUS. *Tourn.* 365.

Male flowers.

Cal. *Catkin* oblong, loosely tiled, cylindrical, consisting of *scales*, inclosing a single flower, oblong, flat, ragged at the edge.

Bloss. *Petals* none.

Nectary 1 leaf, turban-shaped beneath, tubular, ending at the top obliquely, in an egg-shaped border.

Stam. *Filaments* 8, extremely short. *Anthers* 4-edged, large.

Female flowers.

Cal. *Catkin* and *Scales* as above.

Bloss. *Petals* none.

Nectary as above.

Pist. *Germen* egg-shaped, but tapering to a point. *Style* hardly discernible. *Summit* with 4 clefts.

S. VESS. *Capsule* egg-shaped, with 2 cells. *Valves* 2, reflected.

SEEDS numerous, egg-shaped, furnished with down.

DAPH'NE. *Tourn.* 366, *Thymelæa.* *Gærtn.* 39.

CAL. *Cup* none.

BLOSS. 1 petal, funnel-shaped, shrivelling, inclosing the stamens. *Tube* cylindrical, closed, longer than the border. *Border* with 4 clefts. *Segments* egg-shaped, acute, flat, expanding.

STAM. *Filaments* 8, short, inserted into the tube, 4 of them alternately lower than the other 4. *Anthers* upright, roundish, with 2 cells.

PIST. *Germen* egg-shaped. *Style* very short. *Summits* knobbed, flat, but somewhat depressed.

S. VESS. *Berry* of 1 cell, roundish.

SEED single, nearly globular, fleshy.

DIGYNIA.

CO'RYLUS. *Tourn.* 347. *Gærtn.* 89.

Male flowers forming a long catkin.

CAL. *Catkin Common*, tiled on every side, cylindrical, consisting of *Scales*, each inclosing a single flower, narrower at the base, broader and more blunt at the end, bent inwards, with 3 clefts. The *middle Segment* as long, but twice as broad as the others, and covering them.

BLOSS. none.

STAM. *Filaments* 8, very short, fixed to the inner side of the scale of the cup. *Anthers* egg-oblong, shorter than the cup, upright.

Female flowers at a distance from the others, on the same plant, sitting, inclosed in the bud.

CAL. *Involucrum* 1 leaf, fleshy below, turgid, upwards 2-lipped and torn at the edge, containing 1 flower.

Cup indistinct, superior, encircling the styles below.

BLOSS. none.

PIST. *Germen* roundish, very small, with the rudiments of 2 seeds. *Styles* 2, bristle-shaped. *Summits* awl-shaped.

S. VESS. none.

SEED. *Nut* egg-shaped, as if rasped at the base, the end a little compressed, and tapering to a point.

OBS. This genus is nearly allied to the Carpinus. LINN.

TRIGYNIA.

POLYG'ONUM. *Tourn.* 290 & 291, *Bistorta.*

Cal. *Cup* turban-shaped, with 5 divisions, coloured within. *Segments* egg-shaped, blunt, permanent.

Bloss. none, unless you call the cup the blossom.

Stam. *Filaments* generally 8, awl-shaped, very short. *Anthers* roundish, fixed sidewise.

Pist. *Germen* 3-cornered. *Styles* generally 3, thread-shaped, very short. *Summits* simple.

S. Vess. none. The *Cup* laps round the seed.

Seed single, 3-cornered, acute.

Obs. In some species there are 6 or 7 stamens, and in others only 5. In some the pistil is cloven.

TETRAGYNIA.

PA'RIS. *Tourn.* 117, *Herba Paris.*

Cal. *Cup* 4 leaves, permanent; *leafits* spear-shaped, acute, as large as the blossom, expanding.

Bloss. *Petals* 4, expanding, awl-shaped, resembling the cup, permanent.

Stam. *Filaments* 8, awl-shaped, short, beneath the anthers. *Anthers* long, growing to the middle of the filaments, and on each side of them.

Pist. *Germen* roundish, but with 4 angles. *Styles* 4, expanding, shorter than the stamens. *Summits* simple.

S. Vess. *Berry* globular, with 4 angles, and 4 cells.

Seeds several, lying in a double range.

ADOX'A. *Tourn.* 68, *Moschatellina.*

Cal. *Cup* beneath, cloven, flat, permanent.

Bloss. 1 petal, with 4 clefts, flat. *Segments* egg-shaped, acute, longer than the cup.

Stam. *Filaments* 8, awl-shaped, as long as the cup. *Anthers* roundish.

Pist. *Germen* beneath the receptacle of the blossom. *Styles* 4, simple, upright, as long as the stamens, permanent. *Summits* simple.

S. VESS. *Berry* globular, between the cup and the blossom, the cup being connected with the under side of the berry, of 4 cells, dimpled at the end.
SEEDS solitary, compressed.

OBS. Such are the characters of the *terminating* flowers; but the *lateral* flowers have blossoms with 5 clefts, 10 stamens, and 5 pistils.

ELAT'INE. *Vaill.* 1. f. 6.

CAL. *Cup* 4 leaves; *leafits* roundish, flat, as large as the blossom, permanent.
BLOSS. *Petals* 4, egg-shaped, blunt, sitting, expanding.
STAM. *Filaments* 8, as long as the blossom. *Anthers* simple.
PIST. *Germen* large, round, globular, but depressed. *Styles* 4, upright, parallel, as long as the stamens. *Summits* simple.
S. VESS. *Capsule* large, round, globular, but depressed, with 4 cells and 4 valves.
SEEDS several, crescent-shaped, upright, surrounding the receptacle like a wheel.

QUER'CUS. *Tourn.* 349. *Gærtn.* 37.

Male flowers.
CAL. *Catkin* thread-shaped, long, loose.
Cup 1 leaf, with mostly 5 clefts. *Segments* acute, often cloven.
BLOSS. none.
STAM. *Filaments* from 5 to 10, very short. *Anthers* large, double.
Female flowers seated in a bud on the same plant.
CAL. *Involucrum*, *Scales* numerous, tiled, united at the base so as to form a little hemispherical, permanent, leather-like cup, containing 1 flower; outer scales the largest.
Cup very small, superior, with 6 clefts, permanent. *Segments* acute, contiguous to, and surrounding the base of the style.
PIST. *Germen* beneath, very small, egg-shaped, with 3 cells, and the rudiments of 2 seeds. *Style* simple, short, thickest at the base. *Summits* 3, reflected.
S. VESS. none.
SEED. *Nut* egg-cylindrical, leather-like, smooth, as if rasped at the base, of 1 cell, placed in an hemispherical goblet, which is short, and tubercled on the outside.

RHODI'OLA. *Fl. dan.* 183.

Male flowers.

CAL. *Cup* with 4 divisions, concave, upright, blunt, permanent.

BLOSS. *Petals* 4, oblong, blunt, upright, but expanding, twice as long as the cup, deciduous.

Nectaries 4, upright, notched at the end, shorter than the cup.

STAM. *Filaments* 8, awl-shaped, longer than the blossom. *Anthers* simple.

PIST. *Germen* 4, oblong, tapering to a point. *Styles* and *Summits* imperfect.

S. VESS. barren.

Female flowers.

CAL. *Cup* as above.

BLOSS. *Petals* 4, rude, upright, blunt, equal in height to the cup, permanent.

Nectaries as above.

PIST. *Germens* 4, oblong, tapering to a point, ending in straight simple *styles*. *Summits* blunt.

S. VESS. *Capsules* 4, crooked, opening on the inner side.

SEEDS many, roundish.

OBS. Having been sometimes found with hermaphrodite flowers, with 10 stamens, and 5 pistils in each, it might be associated with the *Sedums*, (Schreb.) of whose general habit it very much partakes.

MYRIOPHYL'LUM. *Gærtn.* 68.

Male flowers.

CAL. *Cup* 4 leaves; *leafits*, oblong, upright, the *outermost* the largest, and the *innermost* the smallest.

BLOSS. none, or of 4 petals.

STAM. *Filaments* 8, hair-like, longer than the cup, limber. *Anthers* oblong.

Female flowers placed under the others.

CAL. *Cup* as above.

BLOSS. none, or of 4 petals.

PIST. *Germens* 4, oblong. *Styles* none. *Summits* downy.

S. VESS. none.

SEEDS 4, oblong, naked.

OBS. The Myriophyllum *verticillatum* often bears hermaphrodite flowers, the M. *spicatum* seldom. LINN.

CLASS IX.

ENNEANDRIA.

(9 Stamens.)

DIGYNIA. (2 Pistils.)

Mercurialis.

HEXAGYNIA. (6 Pistils.)

Butomus. *Hydrocharis.*

DIGYNIA.

MERCURIA'LIS. *Tourn.* 308.

Male flowers.

CAL. *Cup* with 3 divisions. *Segments* egg-spear-shaped, concave, expanding.

BLOSS. none.

STAM. *Filaments* 9 or 12, hair-like, straight, as long as the cup. *Anthers* globular, double.

Female flowers.

CAL. *Cup* as above.

BLOSS. none.

Nectaries 2, awl-shaped pointed substances, 1 placed on each side the germen, and pressed into its furrows.

PIST. *Germen* roundish, compressed, with a hollow furrow on each side, rough with hairs. *Styles* 2, bent back, horned, rough with hair. *Summits* acute, bent back.

S. VESS. *Capsule* roundish, purse-shaped, double, with 2 cells.

SEEDS solitary, roundish.

HEXAGYNIA.

BU'TOMUS. *Tourn.* 143. *Gærtn.* 19.

Cal. *Involucrum* simple, of 3 leaves, short.

Bloss. *Petals* 6, circular, concave, shrivelling, every other petal standing on the outside, smaller and more acute.

Stam. *Filaments* 9, awl-shaped, 6 of them on the outside of the others. *Anthers* composed of 2 plates.

Pist. *Germen* 6, oblong, tapering to a point, ending in *styles*. *Summits* simple.

S. Vess. *Capsules* 6, oblong, gradually tapering, upright, of 1 valve, which opens at the inner side.

Seeds many, oblong, cylindrical, blunt at each end, fixed to the side of the capsule.

HYDRO'CHARIS. *Curt.* 167.

Male flower.

Cal. *Sheath* of 2 leaves, oblong, inclosing 3 flowers.

Cup proper, of 3 leaves; *leafits* egg-oblong, concave; membranaceous at the edge.

Bloss. *Petals* 3, circular, flat, large.

Stam. *Filaments* 9, awl-shaped, upright, disposed in 3 rows, the middlemost row in the centre sends out an awl-shaped little pillar, resembling a style, from the inner side of the base. The other 2 rows are connected at the base, so that the outer and inner filament adhere together. *Anthers* simple.

Pist. *Germen* only a rudiment, in the centre of the flower.

Female flower.

Cal. *Sheath* none. Flowers solitary.

Cup as above, superior.

Bloss. as above.

Pist. *Germen* beneath, roundish. *Styles* as long as the cup, compressed, cloven, and furrowed. *Summits* cloven, tapering to a point.

S. Vess. *Capsule* like leather, roundish, with 6 cells.

Seeds numerous, very small, roundish.

CLASS X

DECANDRIA.

(10 Stamens.)

MONOGYNIA. (1 Pistil.)

Monotropa.
Andromeda.
Arbutus.
Pyrola.

DIGYNIA. (2 Pistils.)

Chrysosplenium.
Saxifraga.
Scleranthus.
Saponaria.
Dianthus.

TRIGYNIA. (3 Pistils.)

Cucubalus.
Silene.
Stellaria.
Arenaria.
Cherleria.

PENTAGYNIA. (5 Pistils.)

Cotyledon.
Sedum.
Oxalis.
Agrostemma.
Lychnis.
Cerastium.
Spergula.

MONOGYNIA.

MONOTROPA. *Fl. dan.* 232.

CAL. none, (unless you call the 5 outermost coloured petals the cup.)

BLOSS. *Petals* 10, oblong, nearly parallel but upright, serrated towards the point, deciduous, the outermost, which are every other, bulging at the base, hollow within, and containing honey.

STAM. *Filaments* 10, awl-shaped, upright, simple. *Anthers* simple.

Pist. *Germen* roundish, tapering to a point. *Style* cylindrical, as long as the stamens. *Summit* a blunt knob.

S. Vess. *Capsule* egg-shaped, blunt, with 5 angles, and 5 valves.

Seeds numerous, chaffy.

Obs. Such are the generic characters of the *terminating* flower, but, if there are any *lateral* flowers, they contain 1-5th less in number in all the parts. Linn.

ANDRO'MEDA. *Gærtn.* 63.

Cal. *Cup* with 5 divisions, acute, very small, coloured, permanent.

Bloss. 1 petal, bell-shaped, with 5 clefts. *Segments* reflected.

Stam. *Filaments* 10, awl-shaped, shorter than the blossom, to which they very slightly adhere. *Anthers* with 2 horns, nodding.

Pist. *Germen* roundish. *Style* cylindrical, longer than the stamens, permanent. *Summit* blunt.

S. Vess. *Capsule* roundish, with 5 angles, 5 cells, and 5 valves, opening at the angles. *Partitions* opposite the valves.

Seeds roundish, shining.

Obs. The blossom in some species is egg-shaped, but in others truly bell-shaped, and the anthers are either with or without awns. This genus differs from Erica in the number of the parts. Linn. In Andromeda *Daboecia* there is one-fifth of the parts of the fructification wanting, on which account it is now removed to the genus Erica.

AR'BUTUS. *Tourn.* 368 & 370, *Uva Ursi. Gærtn.* 59.

Cal. *Cup* with 5 divisions, blunt, very small, permanent.

Bloss. 1 petal, egg-shaped, flattish and transparent at the base; *mouth* with 5 clefts. *Segments* blunt, rolled back, small.

Stam. *Filaments* 10, awl-shaped, but bellying, very slender at the base, half as long as the blossom, and fixed edgewise to its base. *Anthers* slightly cloven, nodding.

Pist. *Germen* nearly globular, sitting upon the receptacle, which is marked with 10 dots. *Style* cylindrical, as long as the blossom. *Summit* rather thick and blunt.

S. Vess. *Berry* roundish, with 5 cells.
Seeds small, of a bony hardness.

Obs. The Arbutus *uva ursi* has only 1 seed, in each cell of the capsule, the other species several. Linn.

PY'ROLA. *Tourn.* 132. *Gærtn.* 63.

Cal. *Cup* with 5 divisions, very small, permanent.
Bloss. *Petals* 5, circular, concave, expanding.
Stam. *Filaments* 10, awl-shaped, shorter than the blossom. *Anthers* large, nodding, with 2 horns pointing upwards.
Pist. *Germen* roundish, angular. *Style* thread-shaped, longer than the stamens, permanent. *Summit* rather thick.
S. Vess. *Capsule* roundish, depressed, with 5 angles, 5 valves, and 5 cells, opening at the angles. *Partitions* opposite to the valves.
Seeds numerous, chaffy.

Obs. In some species the stamens and style are upright, in others leaning to one side, and in others again expanding. The shape of the summit is different in different species.

DIGYNIA.

CHRYSOPLE'NIUM. *Tourn.* 60. *Gærtn.* 44.

Cal. *Cup* with 4 or 5 divisions, expanding, coloured, permanent. *Segments* egg-shaped, the opposite ones narrowest.
Bloss. none, (unless you call the cup so because it is coloured.)
Stam. *Filaments* 8 or 10, awl-shaped, upright, very short, standing upon the angular receptacle. *Anthers* simple.
Pist. *Germen* beneath, terminating by 2 awl-shaped *styles*, as long as the stamens. *Summits* blunt.
S. Vess. *Capsule* with 2 beaks, 2 divisions, 1 cell, and 2 half valves, encompassed by the green calyx.
Seeds many, very small.

Obs. The terminating flower has 5 clefts, the others which expand later, only 4. It has a very close affinity to Saxifraga, but by no principle of arrangement can I unite them into one genus. Linn.

SAXIF'RAGA. *Tourn.* 129. *Gærtn.* 26.

Cal. *Cup* 1 leaf, with 5 divisions, short, acute, permanent.

Bloss. *Petals* 5, expanding, narrow at the base.

Stam. *Filaments* 10, awl-shaped. *Anthers* roundish.

Pist. *Germen* roundish, but tapering to a point, and ending in 2 short *Styles*. *Summits* blunt.

S. Vess. *Capsule* somewhat egg-shaped, with 2 beaks, and 2 cells, opening between the beaks.

Seeds numerous, minute.

Obs. In some species the *Germen* is beneath, in others, it is above. After the flower is open, 2 of the *Stamens* opposite to each other, bend down to the *Summits*, and discharge their pollen perpendicularly over them. The next day 2 others bend down, and this is continued until they have all done the same.

SCLERAN'THUS. *Fl. dan.* 504.

Cal. *Cup* 1 leaf, tubular, with 5 shallow clefts, acute, permanent, contracted at the neck.

Bloss. none.

Stam. *Filaments* 10, awl-shaped, upright, very small, fixed to the cup. *Anthers* roundish.

Pist. *Germen* roundish. *Styles* 2, upright, hair-like, as long as the stamens. *Summits* simple.

S. Vess. none.

Seed single, egg-shaped, inclosed by the gristly tube of the cup.

SAPONA'RIA. *Curt.* ii. 17.

Cal. *Cup* 1 leaf, tubular, naked, with 5 teeth, permanent.

Bloss. *Petals* 5. *Claws* narrow, angular, as long as the cup. *Border* flat; limbs broader towards the end, blunt.

Stam. *Filaments* 10, awl-shaped, as long as the tube of the blossom, every other stamen fixed to the claws of the petals, 5 of them shedding their pollen later than the others. *Anthers* oblong, blunt, fixed sidewise.

Pist. *Germen* somewhat cylindrical. *Styles* 2, straight, parallel, as long as the stamens. *Summits* acute.

S. Vess. *Capsule* as long as the cup, oblong, of 1 cell, covered.

Seeds many, small. *Receptacle* loose.

Obs. The figure of the calyx varies in different species. (Reich.)

DIANTHUS. *Tourn.* 174, *Caryophyllus.*

Cal. *Cup* cylindrical, tubular, scored, permanent, with 5 teeth at the mouth, and encompassed at the base with 4 scales, 2 of which are opposite, and lower than the other 2.

Bloss. *Petals* 5. *Claws* as long as the cup, narrow, fixed to the receptacle. *Limbs* flat, broadest towards the end, blunt, scollopped.

Stam. *Filaments* 10, awl-shaped, as long as the cup, standing wide towards the top. *Anthers* oval-oblong, compressed, fixed sidewise.

Pist. *Germen* oval. *Styles* 2, awl-shaped, longer than the stamens. *Summits* rolled back, tapering to a point.

S. Vess. *Capsule* cylindrical, covered, of 1 cell, opening at the top in 4 directions.

Seeds many, compressed, roundish. *Receptacle* loose, 4-cornered, only half as long as the seed-vessel.

Obs. In some species the *Styles* are but little longer than the stamens; in others they are very long, but rolled back so as to render any bending down of the flower unnecessary. Linn. Scales at the base of the calyx sometimes only 2, but they vary even in the same species.

TRIGYNIA.

CUCUBALUS. *Tourn.* 176. *Gærtn.* 77.

Cal. *Cup* 1 leaf, tubular or globular, with 5 teeth, permanent.

Bloss. *Petals* 5. *Claws* as long as the cup. *Border* flat. *Limbs* generally cloven, not crowned by a nectary.

Stam. *Filamens* 10, awl-shaped, every other stamen fixed to the claws of the petals, 5 of them shedding their pollen later. *Anthers* oblong.

Pist. *Germen* rather oblong. *Styles* 3, awl-shaped, longer than the stamens. *Summits* downy, oblong, bending towards the left.

S. Vess. *Capsule* covered, tapering to a point, with 3 cells, opening at the point in 5 different directions.

Seeds many, roundish.

Obs. This genus is distinguished from Silene, by the blossom not being crowned with nectaries. The Cucubalus *otites* has male and female flowers on different plants. Linn.—C. *bacciferus* bears a berry of 1 cell. (Schreb.)

SILE'NE. *Fl. dan.* 559. *Curt.* 266.

Cal. *Cup* 1 leaf, bellying, with 5 teeth, permanent.

Bloss. *Petals* 5. *Claws* narrow, as long as the cup, bordered; *limb* flat, blunt, frequently cloven.

Nectary composed of 2 little teeth at the neck of each petal, and constituting a crown at the mouth of the tube.

Stam. *Filaments* 10, awl-shaped: every other filament fixed to the claws of the petals, and shedding their pollen later. *Anthers* oblong.

Pist. *Germen* cylindrical. *Styles* 3, simple, longer than the stamens. *Summits* bending to the left.

S. Vess. *Capsule* cylindrical, covered, with 1 or 3 cells, opening at the point in 5 or 6 different directions.

Seeds many, kidney-shaped.

Obs. The nectariferous crown of the blossom distinguishes this genus from the Cucubalus. Linn.

STELLA'RIA. *Tourn.* 126, *Alsine.*

Cal. *Cup* 5 leaves. *Leafits* egg-spear-shaped, concave, acute, upright, expanding, permanent.

Bloss. *Petals* 5, deeply divided, flat, oblong, shrivelling.

Stam. *Filaments* 10, thread-shaped, shorter than the blossom, every other shorter. *Anthers* roundish.

Pist. *Germen* roundish. *Styles* 3, hair-like, expanding. *Summits* blunt.

S. Vess. *Capsule* egg-shaped, covered, with 1 cell and 6 valves.

Seeds many, roundish, compressed.

ARENA'RIA. *Curt.* 268 & 272.

Cal. *Cup* 5 leaves. *Leafits* oblong, tapering to a point, expanding, permanent.

Bloss. *Petals* 5, egg-shaped, entire.

Stam. *Filaments* 10, awl-shaped, every other more inwards. *Anthers* roundish.

Pist. *Germen* egg-shaped. *Styles* 3, upright, but a little reflected. *Summits* rather thick.

S. Vess. *Capsule* egg-shaped, covered, with 1 cell, and 3 or 6 valves.

Seeds many, kidney-shaped.

Obs. The number of stamens is variable. (Reich.)

CHERLE'RIA. *Jac. austr.* 284. *Hall.* 114.

CAL. 5 leaves. *Leafits* spear-shaped, concave, equal.

BLOSS. *Petals* none, unless the calyx or nectaries be considered as such. *Nectaries* 5, notched at the end, placed in a circle, very small.

STAM. *Filaments* 10, awl-shaped, every other fixed to the back of the nectaries. *Anthers* simple.

PIST. *Germen* egg-shaped. *Styles* 3, serpentine. *Summits* simple.

S. VESS. *Capsule* egg-shaped, cells 3, valves 3.

SEEDS 2 or 3, kidney-shaped.

PENTAGYNIA.

COTYLE'DON. *Tourn.* 19.

CAL. *Cup* 1 leaf, with 5 clefts, acute, small.

BLOSS. 1 petal, bell-shaped, with 5 shallow clefts. *Nectary* a hollow scale at the base of each germen on the outside.

STAM. *Filaments* 10, awl-shaped, straight, as long as the blossom. *Anthers* upright, with 4 furrows.

PIST. *Germens* 5, oblong, rather thick, ending in awl-shaped *styles*, longer than the stamens. *Summits* simple, reflected.

S. VESS. *Capsules* 5, oblong, bellying, tapering to a point, of 1 valve, opening lengthwise on the inner side.

SEEDS many, small.

SE'DUM. *Tourn.* 140. *Gærtn.* 65.

CAL. *Cup* with 5 clefts, acute, upright, permanent.

BLOSS. *Petals* 5, spear-shaped, tapering to a point, flat, expanding.

Nectaries 5, each consisting of a small scale, notched at the end, and fixed on the outside the base of each germen.

STAM. *Filaments* 10, awl-shaped, as long as the blossom. *Anthers* roundish.

PIST. *Germen* 5, oblong, ending in slender *styles*. *Summits* blunt.

S. VESS. *Capsules* 5, expanding, tapering to a point, compressed, notched at the base, opening inwards along the seam.

Seeds many, very small.

Obs. In several of the species the calyx has from 5 to 7 clefts, the blossom from 5 to 7 petals; the stamens vary from 10 to 12, and the pistils from 5 to 6.

OX'ALIS. *Tourn.* 19, *Oxys. Gærtn.* 113.

Cal. *Cup* with 5 divisions, acute, very short, permanent.

Bloss. with 5 divisions, connected by the claws, upright, blunt, notched at the end.

Stam. *Filaments* 10, hair-like, upright, the 5 outermost the shortest. *Anthers* roundish, furrowed,

Pist. *Germen* with 5 angles. *Styles* 5, thread-shaped, as long as the stamens. *Summits* blunt.

S. Vess. *Capsules* with 5 corners, 5 cells, and 10 valves, opening lengthwise at the corners.

Seeds nearly round, covered by a fleshy elastic seed-coat.

Obs. In some species the capsule is short, and the seeds solitary; in others it is long, and the seeds many; and in others the filaments are united at the base. Linn.

AGROSTEM'MA. *Curt.* 209.

Cal. *Cup* 1 leaf, leather-like, tubular, with 5 teeth, permanent.

Bloss. *Petals* 5; *claws* as long as the tube of the cup; *limbs* expanding, blunt.

Stam. *Filaments* 10, awl-shaped, every other stamen shedding its pollen later, and fixed to the claws of the petals. *Anthers* simple.

Pist. *Germens* egg-shaped. *Styles* 5, thread-shaped, upright, as long as the stamens. *Summits* simple.

S. Vess. *Capsule* oblong-egg-shaped, covered, of 1 cell and 5 valves.

Seeds many, kidney-shaped, dotted. *Receptacles* equal in number to the seeds, loose, the inner ones gradually longer.

Obs. Blossom not crowned in A. *Githago* as it is in the other species. Linn.

LYCH'NIS. *Tourn.* 175.

Cal. *Cup* 1 leaf, oblong, membranaceous, with 5 teeth, permanent.

BLOSS. *Petals* 5; *claws* as long as the cup, flat, bordered, *limbs* flat, frequently cloven.

STAM. *Filaments* 10, longer than the cup, alternately ripening later, and fixed to the claws of the petals. *Anthers* fixed sidewise.

PIST. *Germen* nearly-egg-shaped. *Styles* 5, awl-shaped, longer than the stamens. *Summits* downy, bent towards the left.

S. VESS. *Capsule* approaching to egg-shaped, covered, of 1, 3, or 5 cells, and 5 valves.

SEEDS many, roundish.

OBS. The Lychnis *dioica* has male and female flowers on different plants; the capsule has 1 cell, and 10 valves at its top. In L. *viscaria* the petals are undivided, and the capsule has 5 cells. LINN.

CERAS'TIUM. *Tourn.* 126, *Myosotis.*

CAL. *Cup* 5 leaves. *Leafits* egg-spear-shaped, acute, expanding, permanent.

BLOSS. *Petals* 5, cloven, blunt, upright, but expanding, as long as the cup.

STAM. *Filaments* 10, thread-shaped, shorter than the blossom, alternately longer and shorter. *Anthers* roundish.

PIST. *Germen* egg-shaped. *Styles* 5, hair-like, upright, as long as the stamens. *Summits* blunt.

S. VESS. *Capsule* egg-cylindrical, or globular, blunt, with 1 cell, opening at the top, with 10 teeth or 6 valves.

SEEDS many, roundish.

OBS. Cerastium *semi-decandrum* has only 5 stamens in each flower. The species are subdivided into such as have oblong, and such as have globular capsules. LINN.

SPER'GULA. *Curt.* v. 52, & 262.

CAL. *Cup* 5 leaves. *Leafits* egg-shaped, blunt, concave, expanding, permanent.

BLOSS. *Petals* 5, egg-shaped, concave, expanding, entire, larger than the cup.

STAM. *Filaments* 10, awl-shaped, shorter than the blossom. *Anthers* roundish.

PIST. *Germen* egg-shaped. *Styles* 5, upright, but reflected, thread-shaped. *Summits* rather thick.

S. VESS. *Capsule* egg-shaped, covered with 1 cell and 5 valves.

Seeds many, globular, but depressed, encompassed by a border, with a notch in it.

Obs. This genus is distinguished from the Cerastium, by the entire petals. Spergula *pentandra* has only 5 stamens, Linn.

CLASS XI.

DODECANDRIA.

ALTHOUGH the name given to this Class would induce one to suppose that the flowers arranged under it contained only 12 stamens, it is in fact an assemblage of plants whose flowers contain from 11 to 19 stamens, inclusive. Such as contain fewer than 11, where the character depends upon *number* only, will be found in some of the preceding Classes, and such as have more than 19, in the class Icosandria or Polyandria.

The **Euphorbia**, or Spurge, is the most difficult genus in this Class, caused by the number of stamens being uncertain, those which do exist standing forth only a few at a time, and the effusion of milky juice which makes the dissection of the flowers very difficult to accomplish. But this very milky juice which abounds in all our species, and the peculiar habits of the plants is such, that the young Botanist will soon learn to distinguish the genus at first sight, and the different species by attending closely to the subdivisions of the genus, and to the following circumstances.

Whether the
Root be annual, biennial, or perennial.
Stem be naked, cylindrical, or angular.
Leaves be opposite or alternate; and of what shape.
Umbel be general or partial; its divisions and subdivisions; and the general and partial involucrums.
Flowers have only stamens, or both stamens and pistils.
Petals be entire, crescent-shaped, or hand-shaped, &c.
Capsules be hairy, warty, or smooth.

DODECANDRIA. (12 Stamens.)

Monogynia. (1 Pistil.)

Asarum. *Ceratophyllum.* *Lythrum.*

Digynia. (2 Pistils.)

Carpinus. *Agrimonia.*

Trigynia. (3 Pistils.)

Fagus. *Reseda.* *Euphorbia.*

Dodecagynia. (12 Pistils.)

Sempervivum.

MONOGYNIA.

AS'ARUM. *Tourn.* 286. *Gærtn.* 14.

Cal. *Cup* 1 leaf, bell-shaped, with 3 or 4 shallow clefts, like leather, coloured, permanent. *Segments* upright, with the point bent inwards.

Bloss. none.

Stam. *Filaments* 12, awl-shaped, half as long as the cup. *Anthers* oblong, growing to the middle of the filaments.

Pist. *Germen* either beneath, or else hidden within the substance of the cup. *Style* cylindrical, as long as the stamens. *Summit* star-like, with 6 reflected divisions.

S. Vess. *Capsule* like leather, generally with 6 cells, inclosed within the substance of the cup.

Seeds many, egg-shaped.

CERATOPHYL'LUM. *Gærtn.* 44.

Male flowers.

Cal. *Cup* with many divisions. *Segments* awl-shaped, equal.

Bloss. none.

Stam. *Filaments* twice as many as there are segments in the cup, (16 to 20,) hardly discernible. *Anthers* oblong, upright, longer than the cup.

Female flowers on the same plant.

Cal. *Cup* as above.

Bloss. none.

Pist. *Germen* egg-shaped, compressed. *Style* none. *Summit* blunt, oblique.

S. Vess. *Drupa* egg-shaped, tapering to a point: coat thin.

Seed. *Nut* of 1 cell.

LY'THRUM. *Tourn.* 129, *Salicaria. Gærtn.* 62.

Cal. *Cup* 1 leaf, cylindrical, scored, with 12 teeth, every other tooth smaller.

Bloss. *Petals* 6, oblong, rather blunt, expanding, fixed by the claws to the divisions of the cup.

Stam. *Filaments* 12, thread-shaped, as long as the cup, the upper shorter than the lower ones. *Anthers* simple, rising.

Pist. *Germen* oblong. *Style* awl-shaped, declining, as long as the stamens. *Summit* round and flat, rising.

S. Vess. *Capsule* oblong, tapering to a point, covered; cells 2, or 1.

Seeds numerous, small.

Obs. In the Lythrum *hyssopifolia*, there are only 6 stamens. Linn.

DIGYNIA.

CAR'PINUS. *Tourn.* 348. *Gærtn.* 89.

Male flowers.

Cal. *Catkin* cylindrical, loosely tiled on every side, consisting of *scales*, with a single flower in each, egg-shaped, concave, acute, fringed.

Bloss. none.

Stam. *Filaments* 10 or more, very short. *Anthers* double, compressed, woolly at the end.

Female flowers on the same plant.

Cal. *Catkin* loosely tiled, consisting of *scales*, inclosing a single flower; spear-shaped, woolly, reflected at the end.

Involucrum of 1 leaf, egg-shaped, permanent, with 6 clefts. *Segments* unequal.

Cup very small, superior, with 6 unequal teeth.

Pist. *Germen* very small, 2-celled, with the rudiments of 2 seeds. *Style* very short. *Summits* 2, hair-like.

S. VESS. none. The catkin enlarges, and contains the seed within the base of each scale.

SEED. *Nut* egg-shaped, compressed, covered by the permanent involucrum, which is egg-shaped, compressed, ribbed ; *rim* with 6 clefts, 2 opposite teeth larger than the others.

AGRIMO'NIA. *Tourn.* 155. *Gærtn.* 73.

CAL. *Cup* 1 leaf, with 5 clefts, acute, small, superior, permanent, surrounded by another cup.

BLOSS. *Petals* 5, flat, notched at the end ; *claws* narrow, growing to the cup.

STAM. *Filaments* hair-like, shorter than the blossom, fixed to the cup. *Anthers* small, double, compressed.

PIST. *Germen* beneath. *Styles* 2, simple, as long as the stamens. *Summits* blunt.

S. VESS. none. The cup grows hard and closes at the neck.

SEEDS 2, roundish.

OBS. The number of stamens exceedingly uncertain ; in some flowers 12, sometimes 10, frequently 7. In the Agrimonia *eupatoria* the outer cup adheres to the inner one ; the seeds are 2, the stamens from 12 to 20 ; the fruit surrounded by bristles. LINN.—Stamens from 5 to 12.

TRIGYNIA.

FA'GUS. *Tourn.* 351 & 352, *Castanea.* *Gærtn.* 37.

Male flowers.

CAL. *Catkin* roundish, or cylindrical.

Cup 1 leaf, bell-shaped, with about 6 clefts.

BLOSS. none.

STAM. *Filaments* many, (5 to 20,) as long as the cup, bristle-shaped. *Anthers* oblong.

Female flowers in a bud on the same plant.

CAL. *Involucrum* 1 leaf, with 4 clefts, upright, acute, permanent, inclosing 2 or 3 florets.

Cup of each floret, very small, superior, with 6 clefts, upright, acute, permanent.

BLOSS. none.

PIST. *Germen* somewhat 3-cornered, with 3 or 6 cells, rudiments of the seeds in pairs. *Style* very short, with 3 or 6 divisions. *Summit* simple.

S. VESS. *Capsule* (heretofore the involucrum,) very large, roundish, beset with thorns, of 1 cell and 4 valves.

SEEDS. *Nuts* 2 or 3, egg-shaped, but 3-cornered or compressed, tapering to a point.

OBS. The Fagus *Castanea* has its male flowers disposed in a cylindrical catkin, and they each contain from 5 to 20 stamens. The female flowers inclose 12 barren stamens; the style has 6 divisions; the germen 6 cells; the nuts are 2 or 3, convex on one side, flattish on the other. The capsule is armed with stiff branching thorns.

In the F. *sylvatica*, the male catkins are globular, the stamens from 8 to 12; the style with 3 clefts, the germen with 3 cells; the nuts 2, 3-cornered; the capsule set with soft thorns. LINN.

RESE'DA. *Tourn.* 238, & *Luteola. Gærtn.* 76.

CAL. *Cup* 1 leaf, divided. *Segments* narrow, acute, upright, permanent, 2 of them standing more open on account of the nectariferous petals.

BLOSS. *Petals* several, unequal, always some with 3 shallow clefts; the *uppermost* bulging at the base, as long as the cup, and containing honey.

Nectary a flat upright gland, rising from the receptacle, situated between the stamens and the uppermost petal, closing with the base of the petals, which on that side are dilated.

STAM. *Filaments* 11 to 15, short. *Anthers* blunt, upright, as long as the blossom.

PIST. *Germen* bulging, ending in some very short styles. *Summits* simple.

S. VESS. *Capsule* bulging, angular, tapering to the styles, with 1 cell, opening between the styles.

SEEDS many-kidney-shaped, fixed to the angles of the capsule.

OBS. There is hardly any genus so difficult to characterize as this; the different species varying so much both in figure and number. The essential character consists in the petals *with 3 clefts*, 1 petal bearing the nectary in its base, and the capsules not closed, but always gaping open. In the R. *luteola* the cup has 4 divisions, the petals are 3; the uppermost, containing the nectary, has 6 shallow clefts. The lateral and opposite petals have 3 clefts; and there are sometimes 2 other very small and entire petals. Styles 3. Stamens many. LINN.

EUPHOR'BIA. *Tourn.* 18, *Tithymalus.*

Cal. *Cup* 1 leaf, permanent, somewhat coloured, bellying; *mouth* with 4 (and in a few species with 5) teeth.

Bloss. *Petals* 4, (in a few species 5,) turban-shaped, bulging thick, lopped, irregularly situated, alternating with the teeth of the cup, and fixed by their claws to its edge: permanent.

Stam. *Filaments* many, (12 or more,) thread-shaped, jointed, standing on the receptacle, longer than the blossom, coming forth at different times. *Anthers* double, roundish.

Pist. *Germen* roundish, 3-cornered, standing on a little fruit-stalk. *Styles* 3, cloven. *Summits* blunt.

S. Vess. *Capsule* roundish, consisting of 3 united berries, and 3 cells, opening with a jerk.

Seeds solitary, roundish.

Obs. Petals generally 4, sometimes 5. Male and female flowers are often found on the same plant. Capsule either smooth, hairy, or warty. Linn.

POLYGYNIA.

SEMPERVI'VUM. *Tourn.* 140, *Sedum. Gærtn.* 65.

Cal. *Cup* from 6 to 12 divisions, concave, acute, permanent.

Bloss. *Petals* 6 to 12, oblong, spear-shaped, acute, concave, a little larger than the cup.

Stam. *Filaments* 6 to 12, awl-shaped, slender. *Anthers* roundish.

Pist. *Germens* 6 to 12, placed in a circle, upright, each ending in a *style*; expanding. *Summits* acute.

S. Vess. *Capsule* 6 to 12, oblong, compressed, short, placed in a circle, tapering to a point outwardly, opening on the inner side.

Seeds many, roundish, small.

Obs. When of a luxuriant growth, the numbers often increase, especially the number of the pistils. Nearly allied to Sedum, but differs in always having more than 5 petals.

CLASS XII.

ICOSANDRIA:

ALTHOUGH this is called the class of Twenty Stamens, because the flowers arranged under it generally contain about that number; yet the classic character is not to be taken merely from the number of stamens, but from a consideration of the following circumstances, which will sufficiently distinguish it both from the preceding and ensuing classes.

1. Calyx consisting of 1 leaf, concave.
2. Petals fixed by claws to the inside of the calyx.
3. Stamens more than 19; standing upon the petals, or upon the calyx; (but not upon the *Receptacle.*)

Obs. Hardly any of the plants of this class are poisonous. The fruits are mostly pulpy and esculent.

ICOSANDRIA. (20 Stamens.)

Monogynia. (1 Pistil.)

Prunus.

Digynia. (2 Pistils.)

Cratægus.

Trigynia. (3 Pistils.)

Sorbus.

Pentagynia. (5 Pistils.)

Mespilus.
Pyrus.
Spiræa.

Polygynia. (many Pistils.)

Rosa.
Potentilla.
Dryas.
Rubus.
Tormentilla.
Comarum.
Fragaria.
Geum.

MONOGYNIA.

PRU'NUS. *Tourn.* 398, *&* 301, *Cerasus.*

CAL. *Cup* 1 leaf, bell-shaped, with 5 clefts, deciduous. *Segments* blunt, concave.

BLOSS. *Petals* 5, circular, concave, large, expanding, fixed to the cup by claws.

STAM. *Filaments* 20 to 30, awl-shaped, nearly as long as the blossom, standing on the cup. *Anthers* double, short.

PIST. *Germen* superior, roundish. *Style* thread-shaped, as long as the stamens. *Summit* circular.

S. VESS. nearly globular, pulpy, including a nut or stone.

SEED a *Nut*, somewhat globular, but compressed, seams projecting.

OBS. The inside of the cup, in most of the species, is covered with a number of small glands, which make an appearance like a hoar frost. ST.—In P. *insititia* there are sometimes 2 pistils.

DIGYNIA.

CRATÆ'GUS. *Gærtn.* 87, *Oxyacantha.*

CAL. *Cup* 1 leaf, concave, but expanding, with 5 teeth, permanent.

BLOSS. *Petals* 5, circular, concave, sitting, fixed to the cup.

STAM. *Filaments* 20, awl-shaped, fixed to the cup. *Anthers* roundish.

PIST. *Germen* beneath. *Styles* 2, thread-shaped, upright. *Summits* knobbed.

S. VESS. *Berry* fleshy, nearly globular, dimpled.

SEEDS 2, rather oblong, separate, gristly.

OBS. In Cratægus *Aria* the pistils vary from 2 to 4. With us, in the Cratægus *monogynia*, there is uniformly only 1 pistil and 1 seed.

TRIGYNIA.

SOR'BUS. *Gærtn.* 87, *Sorbus & Aucuparia.*

CAL. *Cup* 1 leaf, concave, but expanding, with 5 teeth, permanent.

BLOSS. *Petals* 5, circular, concave, fixed to the cup.

Stam. *Filaments* 20, awl-shaped, fixed to the cup. *Anthers* roundish.

Pist. *Germen* beneath. *Styles* 3, thread-shaped, upright. *Summits* roundish.

S. Vess. *Berry* soft, globular, with a hollow dimple.

Seeds 3, rather oblong, separate, gristly.

Obs. The number of pistils is not very constant. (Reich.)

PENTAGYNIA.

MES'PILUS. *Tourn.* 410. *Gærtn.* 87.

Cal. *Cup* 1 leaf, concave but expanding, with 5 teeth, permanent.

Bloss. *Petals* 5, circular, concave, fixed to the cup.

Stam. *Filaments* 20, awl-shaped, fixed to the cup. *Anthers* simple.

Pist. *Germen* beneath. *Styles* 5, simple, upright. *Summits* roundish.

S. Vess. *Berry* globular, with a deep hollow nearly pervading it, but closed by the cup.

Seeds 5, hard as bone, bulging.

Obs. From the above description, it appears, that the Cratægus, Sorbus, and Mespilus, are very nearly allied, so as hardly to be distinguished, otherwise than by the number of pistils. The leaves of the *Sorbus* are generally winged; of the *Cratægus* angular; and of the *Mespilus* entire, Linn.—The number of styles variable. (Reich.)

PY'RUS. *Tourn.* 404, 405, & 406. *Gærtn.* 87.

Cal. *Cup* 1 leaf, concave, with 5 shallow clefts, permanent. *Segments* expanding.

Bloss. *Petals* 5, circular, concave, large, fixed to the cup.

Stam. *Filaments* 20, awl-shaped, shorter than the blossom, fixed to the cup. *Anthers* simple.

Pist. *Germen* beneath. *Styles* 5, thread-shaped, as long as the stamens. *Summits* simple.

S. Vess. a *Pomum*, somewhat globular, with a hollow dimple, fleshy, with 5 cells, divisions membranaceous.

Seeds several, oblong, blunt, tapering to a point at the base, convex on one side, flat on the other.

SPIRÆ'A. *Tourn.* 141 *Ulmaria,* 150 *Filipendula. Gærtn.* 69.

CAL. *Cup* 1 leaf, with 5 shallow clefts, flat at the base. *Segments* acute, permanent.

BLOSS. *Petals* 5, oblong, but rounded, fixed to the cup.

STAM. *Filaments* more than 20, thread-shaped, shorter than the blossom, fixed to the cup. *Anthers* roundish.

PIST. *Germens* 5 or more. *Styles* the same number, thread-shaped, as long as the stamens. *Summits* somewhat globular.

S. VESS. *Capsules* oblong, tapering to a point, compressed, 2-valved.

SEEDS few, tapering to a point, small, fixed on the inside the seam of the capsule.

OBS. In Spiræa *Ulmaria,* the capsules are numerous, and placed in a circle; in S. *filipendula* they are numerous, and twisted like a cork-screw. LINN.

POLYGYNIA.

RO'SA. *Tourn.* 408. *Gærtn.* 73.

CAL. *Cup* 1 leaf. *Tube* bellying, narrow at the neck; *border* globular, with 5 divisions, expanding. *Segments* long spear-shaped, narrow, (2 of which are in some species furnished with appendages on each side, and the other 2 alternate ones naked, in others only one segment has these appendages.)

BLOSS. *Petals* 5, inversely heart-shaped, as long as the cup, and fixed to its neck.

STAM. *Filaments* many, hair-like, very short, fixed to the neck of the cup. *Anthers* 3-edged.

PIST. *Germens* numerous, at the bottom of the cup. *Styles* as many as there are germens, closely compressed by the neck of the cup; fixed to the side of the germen. *Summits* blunt.

S. VESS. none. *Berry* fleshy, top-shaped, coloured, soft, of 1 cell, crowned by imperfect segments, closed at the neck, formed by the tube of the cup.

SEEDS numerous, oblong, rough with hair, adhering to the inside of the cup.

OBS. The S. Vess. is formed of the calyx, and resembles a berry. LINN.

RU'BUS. *Tourn.* 385. *Gærtn.* 73.

Cal. *Cup* 1 leaf, with 5 divisions. *Segments* oblong, expanding, permanent.

Bloss. *Petals* 5, circular, as long as the cup, upright, but expanding.

Stam. *Filaments* numerous, shorter than the petals, fixed to the cup. *Anthers* roundish, compressed.

Pist. *Germens* numerous. *Styles* small, hair-like, growing on the sides of the germens. *Summits* simple, permanent.

S. Vess. *Berry* composed of little granulations, collected into a knob, which is convex above, and concave beneath. Each granulation hath 1 cell.

Seeds solitary, oblong. *Receptacle* of the seed-vessels conical.

Obs. The little berries, or granulations, are united so as to form one compound berry, nor can they be separated without tearing them. Rubus *saxatilis* has a berry in which the granulations are distinct, and Rubus *Chamæmorus* bears male and female flowers on different plants. Linn.

FRAGA'RIA. *Tourn.* 152. *Gærtn.* 73.

Cal. *Cup* 1 leaf, flat, with 10 shallow clefts. *Segments* alternately narrower, the narrow ones on the outside the broad ones.

Bloss. *Petals* 5, circular, expanding, fixed to the cup.

Stam. *Filaments* 20, awl-shaped, shorter than the bloss. fixed to the cup. *Anthers* crescent-shaped.

Pist. *Germens* numerous, very small, forming a knob. *Styles* simple, from the sides of the germens. *Summits* simple.

S. Vess. none. *Receptacle of the seeds* a sort of berry, globular egg-shaped, pulpy, soft, large, coloured, lopped at the base, deciduous.

Seeds numerous, very small, tapering to a point, scattered on the surface of the receptacle.

Obs. The receptacle of the seeds in this case, is commonly called a berry. Linn.

POTENTIL'LA. *Tourn.* 153, *Quinquefolium.* *Gærtn.* 73, *Pentaphyllum.*

Cal. *Cup* 1 leaf, flattish, with 10 shallow clefts. *Segments* alternately smaller, reflected.

Bloss. *Petals* 5, roundish, (or heart-shaped,) expanding, fixed by claws to the cup.

Stam. *Filaments* 20, awl-shaped, shorter than the petals, fixed to the cup. *Anthers* oblong-crescent-shaped.

Pist. *Germens* numerous, very small, forming a knob. *Styles* thread-shaped, as long as the stamens, fixed to the sides of the germens. *Summits* blunt.

S. Vess. none. *Receptacle of the seeds* roundish, juiceless, very small, permanent, covered with seeds, inclosed in the cup.

Seeds numerous, tapering to a point.

Obs. This genus agrees with the Potentilla, excepting only that it has one-fifth more in number in all the parts of the fructification, so that the two genera might be united. Linn.

TORMENTIL'LA. *Tourn.* 153.

Cal. *Cup* 1 leaf, flat, with 8 clefts, every other *segment* smaller and more acute.

Bloss. *Petals* 4, inversely heart-shaped, flat, expanding, fixed by claws to the cup.

Stam. *Filaments* 16, awl-shaped, half as long as the petals, fixed to the cup. *Anthers* simple.

Pist. *Germens* 8, small, approaching so as to form a knob. *Styles* thread-shaped, as long as the stamens, fixed to the sides of the germens. *Summits* blunt.

S. Vess. none. *Receptacle of the seeds* very small, loaded with seeds, and inclosed by the cup.

Seeds 8, roundish, naked.

GE'UM. *Tourn.* 151, *Caryophyllata. Gærtn.* 74.

Cal. *Cup* 1 leaf, with 10 clefts, nearly upright. *Segments* alternately very small and sharp.

Bloss. *Petals* 5, rounded; *claws* narrow, as long as the cup, fixed to the cup.

Stam. *Filaments* numerous, awl-shaped, as long as the cup, fixed to the cup. *Anthers* short, rather broad, blunt.

Pist. *Germens* numerous, forming a knob. *Styles* long, hairy, fixed to the sides of the germens. *Summits* simple.

S. Vess. none. *Receptacle of the seed* oblong, hairy, standing upon the reflected cup.

Seeds numerous, compressed, covered with strong hairs, furnished with a long awn formed by the style.

DRY'AS. *Gærtn.* 74.

Cal. *Cup* 1 leaf, with 8 divisions. *Segments* expanding, strap-shaped, blunt, equal, somewhat shorter than the blossom.

Bloss. *Petals* 8, oblong, notched at the end, expanding, fixed to the cup.

Stam. *Filaments* numerous, hair-like, short, fixed to the cup. *Anthers* small.

Pist. *Germens* many, small, crowded together. *Styles* hair-like, fixed to the sides of the germens. *Summits* simple.

S. Vess. none.

Seeds numerous, roundish, compressed, retaining the styles, which grow very long and woolly.

Obs. The calyx has from 6 to 10 segments, and the petals vary the same. (Schreb.)

CO'MARUM. *Gærtn.* 73.

Cal. *Cup* 1 leaf, with 10 shallow clefts, very large, expanding, coloured. *Segments* alternately smaller, and placed under the others, permanent.

Bloss. *Petals* 5, oblong, tapering to a point, 3 times smaller than the cup, to which they are fixed.

Stam. *Filaments* 20, awl-shaped, fixed to the cup, as long as the blossom, permanent. *Anthers* crescent-shaped, deciduous.

Pist. *Germens* numerous, roundish, very small, forming a knob. *Styles* simple, short, fixed to the sides of the germens. *Summits* simple.

S. Vess. none. *Receptacle of the seeds* egg-shaped, fleshy, very large, permanent.

Seeds numerous, tapering to a point, covering the receptacle.

CLASS XIII.

POLYANDRIA.

THE flowers of this class have, as its title implies, *many* stamens, that is, from 20 to 1000 or more, so that it is unnecessary to attempt to count them, further than to be satisfied that they amount to 20 or upwards. The situation of the stamens, as standing UPON THE RECEPTACLE, is sufficient to distinguish it from the preceding class, in which they do not stand upon the receptacle, but either upon the sides of the Calyx or else upon the Petals. A regard to this circumstance will be a surer guide than an attention merely to the NUMBER of the stamens. If the eye does not at once determine the exact situation of the stamens, carefully and slowly pull off the petals and the segments of the calyx, if the stamens remain in their places they may then be considered as growing upon the receptacle.

OBS. Most of the plants of this class are poisonous.

POLYANDRIA. (many Stamens.)

MONOGYNIA. (1 Pistil.)

Actæa. *Chelidonium.* *Papaver.*
Nymphæa. *Tilia.* *Cistus.*

DIGYNIA. (2 Pistils.)

Poterium.

TRIGYNIA. (3 Pistils.)

Delphinium.

PENTAGYNIA. (5 Pistils.)

Aquilegia.

Hexagynia. (6 Pistils.)

Stratiotes.

Polygynia. (many Pistils.)

Zostera.
Arum.
Anemone.
Clematis.
Thalictrum.
Adonis.
Ranunculus.
Trollius.
Helleborus.
Caltha.
Sagittaria.

MONOGYNIA.

ACTÆ'A. *Tourn.* 154, *Christophoriana.* *Gærtn.* 114.

Cal. *Cup* 4 leaves. *Leafits* circular, blunt, concave, shedding.

Bloss. *Petals* 4, tapering each way, larger than the cup, shedding.

Stam. *Filaments* about 30, hair-like, broader towards the top. *Anthers* roundish, double, upright.

Pist. *Germen* egg-shaped. *Style* none. *Summit* thickish, obliquely depressed.

S. Vess. *Berry* oval-globular, smooth, with 1 furrow, and 1 cell.

Seeds many, semi-globular, standing in a double row.

CHELIDO'NIUM. *Tourn.* 116 & 130, *Glaucium.* *Gærtn.* 115.

Cal. *Cup* 2-leaved, roundish. *Leafits* somewhat egg-shaped, concave, blunt, shedding.

Bloss. *Petals* 4, circular, flat, expanding, large, narrower at the base.

Stam. *Filaments* about 30, flat, broader upwards, shorter than the blossom. *Anthers* oblong, compressed, blunt, upright, double.

Pist. *Germen* cylindrical, as long as the stamens. *Style* none. *Summit* a knob, cloven.

S. Vess. *Pod* cylindrical, generally with 2 valves.

Seeds many, egg-shaped, shining, adhering to the little stalk that connects them with the receptacle. *Receptacle* narrow, situated between the seams of the valves, and applied close to the seams through their whole length, continuing entire.

OBS. The Ch. *majus* produces a long pod of 1 cell; the Ch. *glaucium* and Ch. *corniculatum* a long pod of 2 capsules, and the Ch. *hybridum* a long pod with 3 valves. LINN. Ch. *majus* has a capsule resembling a pod, with knots where the seeds are placed, it has 1 cell and 2 valves. The seeds are egg-shaped, with a kind of crest along the back, and fixed by each end to a thread-shaped receptacle, and between the edges of the valves. The Ch. *glaucium et hybridum* have a very long pod-like capsule, compressed transversely, of 2 cells, 2 valves, and a partition inserted between the edges of the valves. The seeds are globular, and fixed in hollow cavities to the middle of the spongy receptacle. (Gærtn.)

PAPA'VER. *Tourn.* 119, 120. *Gærtn.* 60.

CAL. *Cup* 2-leaved, egg-shaped, nicked at the end. *Leafits* 2, somewhat egg-shaped, concave, blunt, shedding.

BLOSS. *Petals* 4, circular, flat, expanding, large, narrowest at the base, alternately smaller.

STAM. *Filaments* numerous, hair-like, much shorter than the blossom. *Anthers* oblong, compressed, upright, blunt.

PIST. *Germen* nearly globular, large. *Style* none. *Summit* target-shaped, flat, radiating.

S. VESS. *Capsule* of 1 cell, divided half way into many cells, opening by several apertures beneath the crown formed by the large and flat summit.

SEEDS numerous, very small. *Receptacle* consisting of as many longitudinal plaits as there are rays in the summit, connected to the sides of the capsule.

OBS. The *seed-vessel* varies in figure, from globular to oblong, and the number of rays in the summit are likewise various. The species may be divided into such as have *smooth* and such as have *rough hairy* seed-vessels. LINN.

NYMPHÆ'A. *Tourn.* 137 & 138. *Gærtn.* 19.

CAL. *Cup* beneath, 4-leaved, large, coloured on the upper surface, permanent.

BLOSS. *Petals* numerous, (often 15,) fixed to the side of the germen, in more than 1 row.

STAM. *Filaments* numerous, (often 70,) flat, crooked, blunt, short. *Anthers* oblong, fixed to the edge of the filaments.

PIST. *Germen* egg-shaped, large. *Style* none. *Summit* circular, flat, central, sitting, marked with rays, scolloped at the edge, permanent.

S. Vess. *Berry* hard, egg-shaped, fleshy, rough, narrow at the neck, crowned at the top, with many cells, (10 to 15,) filled with pulp.

Seeds many, roundish.

Obs. The Nymphæa *lutea* has a cup composed of 5 circular leafits, and the petals are smaller than in the other species. Linn.

TIL'IA. *Tourn.* 381. *Gærtn.* 113.

Cal. *Cup* with 5 divisions, concave, coloured, almost as large as the blossom, deciduous.

Bloss. *Petals* 5, oblong, blunt, scolloped at the end.

Stam. *Filaments* many, (30 or more,) awl-shaped, as long as the blossom. *Anthers* simple.

Pist. *Germen* roundish. *Style* thread-shaped, as long as the stamens. *Summit* with 5 blunt edges.

S. Vess. *Capsule* like leather, globular, with 5 cells, and 5 valves, opening at the base.

Seeds solitary, roundish.

Obs. In general only 1 seed comes to perfection, and this pushes aside the others, which are barren, so that an incautious observer would be apt to pronounce, that the capsule has but 1 cell. Linn.

CIS'TUS. *Tourn.* 136, & 128, *Helianthemum. Gærtn.* 76.

Cal. *Cup* 5 leaves, permanent. *Leafits* circular, concave, 2 of them smaller, placed below, but alternating with the others.

Bloss. *Petals* 5, circular, flat, expanding, very large.

Stam. *Filaments* numerous, hair-like, shorter than the blossom. *Anthers* roundish, small.

Pist. *Germen* roundish. *Style* simple, as long as the stamens. *Summits* flat, circular.

S. Vess. *Capsule* roundish, covered by the cup.

Seeds numerous, roundish, small.

Obs. The essential character of the genus consists in the 2 smaller and alternate leaves of the calyx. Some species have a capsule of 1 cell and 3 valves, in others it has 5 or 10 cells and as many valves as there are cells. Linn.

DIGYNIA.

POTE'RIUM. *Tourn.* 68, *Pimpinella. Gærtn.* 32.

Male flowers forming a spike.

Cal. *Cup* 4 leaves. *Leafits* egg-shaped, coloured, shedding.

Bloss. with 4 divisions. *Segments* egg-shaped, concave, expanding, permanent.

Stam. *Filaments* many, (30 to 50,) hair-like, very long, limber. *Anthers* roundish, double.

Female flowers, above the male, on the same spike.

Cal. *Cup* as above.

Bloss. *Petal* 1, wheel-shaped. *Tube* short, roundish, closing at the mouth. *Border* with 5 divisions. *Segments* egg-shaped, flat, reflected, permanent.

Pist. *Germens* 2, egg-oblong, within the tube of the blossom. *Styles* 2, hair-like, coloured, limber, as long as the blossom. *Summits* pencil-shaped, coloured.

S. Vess. *Berry* formed of the tube of the blossom, grown thick, hard, and closed.

Seeds 2.

Obs. P. *Sanguisorba* bears a berry which is angular and juiceless, its seeds are 4-cornered, tapering to a point at each end. The male flowers produce 2 feeble pistils. Linn. and the calyx has 2, 3, or 4 leaves. (Reich.)

TRIGYNIA.

DELPHIN'IUM. *Tourn.* 241. *Gærtn.* 65.

Cal. *Cup* none.

Bloss. *Petals* 5, unequal, placed in a circle, the uppermost before blunter than the rest, behind extended into a straight, tubular, long, blunt horn, the other egg-spear-shaped, expanding, nearly equal.

Nectary cloven, its front standing in the upper part of the circle of the petals, and its hinder part inclosed by the tube of the uppermost petal.

Stam. *Filaments* many, (15 to 30,) awl-shaped, broadest at the base, very small, leaning towards the uppermost petal. *Anthers* upright, small.

Pist. *Germens* 3 or 1, egg-shaped, ending in *styles* as long as the stamens. *Summits* simple, reflected.

S. Vess. *Capsules* 3 or 1, egg-awl-shaped, straight, with 1 valve, opening inwards.

Seeds many, angular.

PENTAGYNIA.

AQUILE'GIA. *Tourn.* 142. *Gærtn.* 118.

CAL. *Cup* none.

BLOSS. *Petals* 5, spear-egg-shaped, flat, expanding, equal. *Nectaries* 5, equal, alternating with the petals, horned, gradually widening upwards, the mouth ascending obliquely outwards, fixed to the receptacle inwardly, extending below into a long tapering tube, blunt at the end.

STAM. *Filaments* many, (30 to 40,) awl-shaped, the outer ones the shortest. *Anthers* oblong, upright, as tall as the nectaries.

PIST. *Germens* 5, egg-oblong, ending in awl-shaped *styles*, longer than the stamens. *Summits* upright, undivided: 10 short, wrinkled, chaffy substances separate and inclose the germens.

S. VESS. *Capsules* 5, distinct, cylindrical, parallel, straight, tapering to a point, with 1 valve, opening from the point inwardly.

SEEDS many, egg-shaped, keeled, fixed to the opening seam.

HEXAGYNIA.

STRATIO'TES. *Gærtn.* 14.

Male flowers.

CAL. *Sheath* 2-leaved, containing 3 or 5 florets. *Leafits* boat-shaped, compressed, blunt, approaching, keeled, nearly equal, permanent.

Cup 1 leaf, with 3 divisions, upright, deciduous.

BLOSS. *Petals* 3, inversely heart-shaped, upright, but expanding, twice as large as the cup.

Nectaries 20, resembling anthers, strap-spear-shaped, acute, placed in a circle, standing on the receptacle.

STAM. *Filaments* 12, thread-shaped, shorter than the nectaries, fixed to the receptacle. *Anthers* strap-shaped, upright.

Female flowers.

CAL. *Sheath* as above, but inclosing only 1 floret.

Cup as above, superior.

BLOSS. as above.

Nectaries as above, but rather larger.

Pist. *Germen* beneath, egg-shaped, but with 6 angles, and compressed. *Styles* 6, divided down to the base. *Summits* simple, bent outwards.

S. Vess. *Berry* egg-shaped, tapering at each end, with 6 sides, and 6 cells; pulp pellucid.

Seeds many, oblong, cylindrical.

Obs. Nectaries from 21 to 31. Stamens from 11 to 13. (Schreb.) The Stratiotes *aloides*, in cold climates, bears hermaphrodite flowers, with 20 stamens in each. (Gærtn.)

POLYGYNIA.

ZOSTE'RA. *Gærtn.* 19.

Male flowers.

Cal. *Sheath* none, except the base of the leaf, inclosing the spike-stalk, approaching, and notched on each side towards the top.

Spike-stalk strap-shaped, flat, bearing stamens on its upper, and pistils on its under side.

Cup none.

Bloss. none.

Stam. *Filaments* alternate, numerous, very short, fixed to the spike-stalk above the germens. *Anthers*, 1 on each filament, egg-oblong, nodding, blunt, awl-shaped and crooked upwards and backwards.

Female flowers.

Cal. as above.

Cup none.

Bloss. none.

Pist. *Germens* fewer, egg-shaped, compressed, alternate, 2-edged, nodding, fixed by the top to a little fruit-stalk. *Style*, 1 on each germen, simple. *Summits* 2, hair-like.

S. Vess. *Capsule* egg-shaped, beaked, terminated by the style, rather compressed, membranaceous, transparent, of 1 cell, without valves, (Gærtn.) opening lengthwise at a lateral angle. (Linn.)

Seed single, elliptical, compressed, scored. (Gærtn.)

A'RUM. *Tourn.* 69. *Gærtn.* 84.

Male flowers on the same fruit-stalk with the females, closely crowded, between a double row of tendrils.

Cal. *Sheath* of 1 leaf, very large, oblong, lapped round at the base, approaching at the top, compressed in the middle, coloured on the inside.

Sheathed Fruit-stalk club-shaped, undivided, a little shorter than the sheath, coloured, set round with germens on the lower part, above the germens, shrivelling.

Cup none.

Bloss. none.

Nectaries, thick at the base, ending in thread-shaped tendrils, placed in two rows round the middle of the fruit-stalk.

Stam. *Filaments* none. *Anthers* sitting, 4-cornered.

Female flowers on the lower part of the fruit-stalk, near together.

Cal. *Sheath* and sheathed *Fruit-stalk* as above.

Cup none.

Bloss. none.

Pist. *Germens* each inversely egg-shaped. *Style* none. *Summit* bearded with soft hairs.

S. Vess. *Berry* globular, of 1 cell.

Seeds many, roundish.

Obs. The wonderful and unparalleled structure of this flower hath given rise to many disputes amongst the most eminent Botanists.—The *Receptacle* is lengthened out into a naked club, with germens surrounding its base. The *stamens*, which is truly wonderful, are fixed to the receptacle *more within* than the germens, and consequently standing less in need of filaments to elevate them. Hence it may be said to be an inverted flower. —What are the above-mentioned threads noticed under the name of tendrils? Linn.

ANEMO'NE. *Tourn.* 147 & 148. *Gærtn.* 74.

Cal. none.

Bloss. *Petals* in 2 or 3 rows, rather oblong, 3 in each row.

Stam. *Filaments* numerous, hair-like, half as long as the blossom. *Anthers* double, upright.

Pist. *Germens* numerous, forming a knob. *Styles* taper. *Summits* blunt.

S. Vess. none. *Receptacle* globular, or oblong, with hollow dots.

Seeds many, tapering to a point, retaining the style.

Obs. The Anemone *Pulsatilla* has a many-cloven leafy Involucrum, and the tails of the seeds are hairy. Linn.

CLE'MATIS. *Tourn.* 150, *Clematitis*. *Gærtn.* 74.

Cal. *Cup* none.

Bloss. *Petals* 4, flexible, oblong.

Stam. *Filaments* many, awl-shaped, shorter than the blossom. *Anthers* fixed to the sides of the filaments.

Pist. *Germens* many, roundish, compressed, ending in awl-shaped *Styles*, longer than the stamens. *Summit* simple.

S. Vess. none. *Receptacle* a small knob.

Seeds many, roundish, compressed, retaining the style, which is variously shaped.

THALIC'TRUM. *Tourn.* 143. *Gærtn.* 74.

Cal. *Cup* none, (unless we call the blossom the cup.)

Bloss. *Petals* 4, circular, blunt, concave, shedding.

Stam. *Filaments* many, broadest in the upper part, compressed, longer than the blossom. *Anthers* oblong, upright.

Pist. *Germens* many, roundish, often standing on little foot-stalks. *Styles* none. *Summits* thick.

S. Vess. none.

Seeds many, furrowed, egg-shaped, without awns.

Obs. The number of Stamens and Pistils is different in different species. Linn. In some species there are styles of considerable length. In no well known genus are the species more difficult to distinguish and characterise than in this.

ADO'NIS. *Gærtn.* 74.

Cal. *Cup* 5 leaves. *Leafits* blunt, concave, a little coloured, deciduous.

Bloss. *Petals* 5 to 15, oblong, blunt, shining.

Stam. *Filaments* many, very short, awl-shaped. *Anthers* oblong, bent inwards.

Pist. *Germens* numerous, forming a knob. *Styles* none. *Summits* acute, reflected.

S. Vess. none. *Receptacle* oblong, spike-like.

Seeds numerous, irregular, angular, without awns, bulging at the base, bent back at the point with a small projection.

RANUN'CULUS. *Tourn.* 149. *Gærtn.* 74.

Cal. *Cup* 5 leaves. *Leafits* egg-shaped, concave, a little coloured, deciduous.

Bloss. *Petals* 5, blunt, shining, with small claws.

Nectary a little cavity, just above the claw of each petal.

Stam. *Filaments* many, nearly half as long as the petals. *Anthers* upright, oblong, blunt, double.

Pist. *Germens* numerous, forming a knob. *Styles* none. *Summits* reflected, very small.

S. Vess. none. *Receptacle* connecting the seeds by very short foot-stalks.

Seeds many, irregular, crooked at the point, figure various.

Obs. The essential character of this genus consists in the *nectary*, the other parts of the flower are inconstant. This nectary is in some species a naked pore, in others, encompassed by a cylindrical border, and, in others again, closed by a scale which is notched at the end. In the R. *ficaria*, the cup has 3 leaves, and the blossoms more than 5 petals. The R. *hederaceus* has only 5 stamens, and the R. *sceleratus* an awl-shaped receptacle, and the fruit in a spike. In some species the seeds are roundish, in others depressed; sometimes they are beset with prickles like a hedge-hog, and sometimes they are but few in number. Linn.

TROL'LIUS. *Gærtn.* 118.

Cal. none.

Bloss. *Petals* about 14, nearly egg-shaped, deciduous, 3 in each of the 3 outer rows, and 5 in the innermost.

Nectaries 9, strap-shaped, flat, crooked, perforated on the inner side at the base.

Stam. *Filaments* numerous, bristle-shaped, shorter than the blossom. *Anthers* upright.

Pist. *Germens* numerous, sitting, like pillars. *Styles* none. *Summits* sharp-pointed, shorter than the stamens.

S. Vess. *Capsules* numerous, forming a knob, egg-shaped, with a crooked point.

Seeds solitary.

HELLEB'ORUS. *Tourn.* 144. *Gærtn.* 65.

Cal. *Cup* none, (unless we reckon the blossom such, which in some species is permanent.)

Bloss. *Petals* 5, circular, blunt, large.

Nectaries many, very short, placed in a circle, consisting of one leaf, tubular, narrowest beneath. *Mouth* with 2 lips, upright, notched at the end, the inner lip the shortest.

Stam. *Filaments* numerous, awl-shaped. *Anthers* compressed, narrowest in the lower part, upright.

Pist. *Germens* generally 6, compressed. *Styles* awl-shaped. *Summits* rather thick.

S. Vess. *Capsules* compressed, keeled at both edges, the lower edge the shortest, the upper the most convex, opening.

Seeds several, round, fixed to the seams.

CAL'THA. *Tourn.* 145, *Populago.* *Gærtn.* 118.

Cal. *Cup* none.

Bloss. *Petals* 5, egg-shaped, flat, expanding, large, shedding.

Stam. *Filaments* numerous, thread-shaped, shorter than the petals. *Anthers* compressed, blunt, upright.

Pist. *Germens* from 5 to 10, oblong, compressed, upright. *Styles* none. *Summits* simple.

S. Vess. *Capsules* from 5 to 10, short, tapering to a point, expanding, keeled at both edges, opening at the upper seam.

Seeds many, roundish, with an edging, fixed to the upper seam.

SAGITTA'RIA. *Gærtn.* 84.

Male flowers, numerous.

Cal. *Cup* 3 leaves. *Leafits* egg-shaped, concave, permanent.

Bloss. *Petals* 3, circular, blunt, flat, expanding, thrice as large as the cup.

Stam. *Filaments* many, (generally 24,) awl-shaped, collected into a little head. *Anthers* upright, as long as the cup.

Female flowers fewer, beneath the other.

Cal. *Cup* as above.

Bloss. *Petals* 3, as above.

Pist. *Germens* numerous, compressed, forming a little head, bulging on the outer side, ending in very short *styles*. *Summits* acute, permanent.

S. Vess. none. *Receptacle* globular, and set round with the seeds so as to form a globe.

Seeds numerous, oblong, compressed, encompassed lengthwise by a broad membranaceous border, bulging on one side, tapering towards each end.

CLASS XIV.

DIDYNAMIA.

(2 Stamens longer.)

THE essential character of this Class consists in the Flowers being furnished with 4 stamens, 2 of which are *long*, and 2 *short*. The short stamens stand next together and adjoining to the style of the pistil. They are covered by the blossom, which is irregular in its shape. This Class comprehends the *whirled*, the *lipped*, the *masked*, the *gaping*, and the *grinning* flowers of other authors. It admits of the following NATURAL CHARACTER:

CAL. *Cup* 1 leaf, upright, tubular, with 5 clefts. *Segments* unequal, permanent.

BLOSS. 1 petal, upright, the base tubular, containing honey, and serving for a nectary. *Border* generally gaping, *upper lip* straight, *lower lip* expanding, with 3 *segments*, the middle one the broadest.

STAM. *Filaments* 4, strap-shaped, fixed to the tube of the bloss. but leaning towards the back of it. Filaments all parallel, seldom taller than the blossom. The 2 middle ones shorter than those on each side. *Anthers* generally covered by the upper lip of the blossom, and approaching each other so as to stand in pairs.

PIST. *Germen* generally superior. *Style* single, thread-shaped, bent in the same manner as the filaments, and generally standing in the midst of them, but somewhat longer, and a little crooked at the top. *Summit* generally cloven.

S. VESS. either none, (as in the first Order,) but when there is one, (as in the second Order,) it generally consists of 2 cells.

SEEDS in the *first Order* 4, seated at the bottom of the cup. In the *second Order* many, fixed to the receptacle, which is placed in the middle of the seed-vessel.

OBS. The flowers of this class are, for the most part, nearly upright, but leaning a little from the stem, so that the blossom may more effectually cover the anthers from the rain, and the pollen more easily fall upon the summit. The plants in the first Order of this Class are odoriferous, cephalic, and resolvent. None of them are poisonous.

GYMNOSPERMIA. (Seeds naked.)

Ajuga.
Teucrium.
Nepeta.
Verbena.
Mentha.
Glecoma.
Lamium.
Galeopsis.
Galeobdolon.
Betonica.
Stachys.
Ballota.
Marrubium.
Leonurus.
Clinopodium.
Origanum.
Thymus.
Melissa.
Melittis.
Scutellaria.
Prunella.

ANGIOSPERMIA. (Seeds covered.)

Bartsia.
Rhinanthus.
Euphrasia.
Melampyrum.
Lathræa.
Pedicularis.
Antirrhinum.
Scrophularia.
Digitalis.
Linnæa.
Sibthorpia.
Limosella.
Orobanche.

GYMNOSPERMIA.

A'JUGA. *Tourn.* 98, *Bugula, & Chamæpitys.*

CAL. *Cup* 1 leaf, short, with 5 shallow clefts, nearly equal, permanent.

BLOSS. 1 petal gaping. *Tube* cylindrical, crooked. *Upper lip* very small, upright, cloven, blunt. *Lower lip* large, expanding, with 3 segments, blunt, middle segment large, inversely heart-shaped, lateral segments small.

STAM. *Filaments* 4, (2 short, and 2 long,) awl-shaped, upright, taller than the upper lip. *Anthers* double.

PIST. *Germen* with 4 divisions. *Style* thread-shaped, agreeing in size and situation with the stamens. *Summits* 2, slender, the lowermost the shortest.

S. VESS. none. The *Cup* closes and retains the seed.

SEEDS 4, rather long.

TEU'CRIUM. *Tourn.* 97, *Chamædrys, &* 98.

CAL. *Cup* 1 leaf, with 5 shallow clefts, nearly equal, acute, bulging on one side the base, permanent.

BLOSS. 1 petal, gaping. *Tube* cylindrical, short, ending in a crooked mouth. *Upper lip* upright, acute, deeply divided, even lower than its base. *Segments* standing wide. *Lower lip* with 3 clefts, expanding, *lateral segments* a little upright, of the shape of the upper lip, the *middle* one large, circular.

STAM. *Filaments* 4, awl-shaped, longer than the upper lip of the blossom, and projecting between its segments. *Anthers* small.

PIST. *Germen* with 4 divisions. *Style* thread-shaped, agreeing in size and situation with the stamens. *Summits* 2, slender.

S. VESS. none. The *Cup* remaining unchanged contains the seeds within it.

SEEDS 4, roundish.

OBS. The very deep division of the upper lip of the blossom, and its segments standing so wide apart, give the appearance of a flower without any upper lip. The T. *Chamædrys* has a tubular calyx, and bears its flowers in the bosom of the leaves. LINN.

NEP'ETA. *Tourn.* 95, *Cataria.*

CAL. *Cup* 1 leaf, tubular, cylindrical; *mouth* with 5 teeth, acute, upright, *upper* teeth the longest, the *lower* most expanded.

BLOSS. 1 petal, gaping. *Tube* cylindrical, crooked; *border* open. *Mouth* expanding, heart-shaped, terminated by 2 very short, reflected, blunt segments. *Upper lip* upright, circular, notched at the end. *Lower lip* circular, concave, larger, entire, a little scolloped at the edge.

STAM. *Filaments* 4, 2 long, and 2 short, awl-shaped approaching, covered by the upper lip. *Anthers* fixed sidewise.

PIST. *Germen* with 4 clefts. *Style* thread-shaped, agreeing in length and situation with the stamens. *Summit* cloven, acute.

S. VESS. none. The *Cup* standing upright contains the seeds.

SEEDS 4, somewhat egg-shaped.

OBS. If we reckon the segments of the mouth as a part of the lower lip, that lip must then be considered as having three divisions. LINN.

VERBE'NA. *Tourn.* 94. *Gærtn.* 66.

CAL. *Cup* 1 leaf, angular, tubular, slender, permanent, with 5 teeth, 1 of the teeth lopped.

BLOSS. 1 petal, unequal. *Tube* cylindrical, straight, as long as the cup, dilated, and bowed inward towards the top. *Border* expanding, with 5 shallow clefts. *Segments* rounded, nearly equal.

STAM. *Filaments* 4, like bristles, very short, concealed within the tube of the blossom, 2 of them longer. *Anthers* crooked.

PIST. *Germen* 4-cornered. *Style* simple, thread-shaped, as long as the tube. *Summit* blunt.

S. VESS. very fine and thin, but generally none, the cup containing the seeds.

SEEDS 2 or 4, oblong.

OBS. Linnæus allotted a place to this genus in the class DIANDRIA, because some of the species have only 2 stamens, but as the species found with us has uniformly 4, and its structure in other respects agreeing with the plants of this class, it is introduced here, where the English Botanist would expect to find it.

MEN'THA. *Tourn.* 89.

CAL. *Cup* 1 leaf, tubular, upright, with 5 teeth, equal, permanent.

BLOSS. 1 petal, upright, tubular, rather longer than the cup. *Border* with 4 divisions, nearly equal. The *upper Segment* broadest, and notched at the end.

STAM. *Filaments* 4, awl-shaped, upright, distant, the 2 next each other the longest. *Anthers* roundish.

PIST. *Germen* cloven into 4. *Style* thread-shaped, upright, longer than the blossom. *Summit* cloven, expanding.

S. VESS. none. *Cup* upright, containing the seeds.

SEEDS 4, small.

OBS. In Mentha *aquatica* the stamens are nearly all of a length.

GLECO'MA. *Curt.* 143.

CAL. *Cup* 1 leaf, tubular, cylindrical, scored, very small, permanent; *rim* with 5 clefts. *Segments* unequal, tapering to a point.

Bloss. 1 petal, gaping. *Tube* slender, compressed. *Upper lip* upright, blunt, with a shallow cleft. *Lower lip* expanding, large, blunt, with 3 segments, the middle one largest, and notched at the end.

Stam. *Filaments* 4, 2 long and 2 short, covered by the upper lip. *Anthers* of each pair of stamens approaching so as to form a cross.

Pist. *Germen* cloven into 4. *Style* thread-shaped, leaning under the upper lip. *Summit* cloven, acute.

S. Vess. none. The seeds at the bottom of the cup.

Seeds 4, egg-shaped.

LA'MIUM. *Tourn.* 85.

Cal. *Cup* 1 leaf, tubular, wider towards the top, with 5 teeth, and awns, nearly equal, permanent.

Bloss. 1 petal, gaping. *Tube* cylindrical, very short. *Border* open. *Mouth* inflated, compressed, bulging, with a little tooth turned backwards on each side. *Upper lip* vaulted, circular, blunt, entire. *Lower lip* shorter, inversely heart-shaped, notched at the end, reflected.

Stam. *Filaments* 4, awl-shaped, 2 long and 2 short, covered by the upper lip. *Anthers* oblong, hairy.

Pist. *Germen* with 4 clefts. *Style* thread-shaped, agreeing in length and situation with the stamens. *Summit* cloven, acute.

S. Vess. none. The *Cup* remaining open contains the seeds in its bottom, forming a flat surface.

Seeds 4, short, 3-cornered, convex on one side, lopped at each end.

GALEOP'SIS. *E. bot.* 207.

Cal. *Cup* 1 leaf, tubular, with 5 teeth, ending in sharp awns as long as the tube, permanent.

Bloss. 1 petal, gaping. *Tube* short. *Border* open. *Mouth* somewhat wider than the tube, and as long as the cup. Above the base of the lower lip on each side lies a little tapering tooth, hollow on the under surface. *Upper lip* circular, concave, serrated at the top. *Lower lip* with 3 segments, the lateral ones circular, the *middle* one larger, scolloped, notched at the end.

STAM. *Filaments* 4, 2 long and 2 short, awl-shaped, covered by the upper lip. *Anthers* roundish, cloven.
PIST. *Germen* with 4 clefts. *Style* thread-shaped, agreeing in length and situation with the stamens. *Summit* cloven, acute.
S. VESS. none. The *Cup* stiff, straight, containing the seed in its bottom.

OBS. In G. *Ladanum* the upper lip of the blossom is a little reflected, but not very evidently scolloped. LINN. The G. *Galeobdolon* has no teeth on the lower lip of the blossom, but it is divided into three equal segments, and the upper lip is entire, being only fringed with a few soft hairs. On these accounts Mr. Hudson made a distinct genus of it, under the name of *Galeobdolon*.

GALEOB'DOLON. (HUDS.) *Curt.* 223.

CAL. *Involucrum* underneath the whirls. *Leafits* strap-shaped, acute, shorter than the calyx.
Cup 1 leaf, tubular, bell-shaped, with 5 teeth, tapering to a point, the upper tooth upright, distant, the 2 lower expanding.
BLOSS. 1 petal, gaping. *Tube* cylindrical, short. *Upper lip* oval, vaulted, nearly entire, fringed, woolly. *Lower lip* shorter, with 3 clefts, unequal, the *lateral Segments* egg-shaped, tapering to a point, the outer edge bent back, the *middle Segments* longer, straight, tapering to a point.
STAM. *Filaments* 4, awl-shaped, covered by the upper lip, 2 of them longer. *Anthers* in pairs, oblong, double, convex above, concave underneath.
PIST. *Germen* with 4 divisions. *Style* thread-shaped, of the length and situation of the stamens. *Summit* cloven, acute.
S. VESS. none. The *Cup* unchanged contains the seeds in its bottom.
SEEDS 4, short, 3-square, lopped. (HUDS.)

BETON'ICA. *Tourn.* 96.

CAL. *Cup* 1 leaf, tubular, cylindrical, 5-toothed, awned, permanent.
BLOSS. 1 petal, gaping. *Tube* cylindrical, crooked. *Upper lip* circular, entire, flat, upright. *Lower lip* with 3 segments, the middle one broader, circular, notched at the end.

STAM. *Filaments* 4, 2 long and 2 short, as long as the mouth of the blossom, and leaning towards the upper lip. *Anthers* roundish.

PIST. *Germen* with 4 divisions. *Style* in shape, size, and situations, resembling the stamens. *Summit* cloven.

S. VESS. none. The *Cup* contains the seeds.

SEEDS 4, egg-shaped.

STA'CHYS. *Tourn.* 86.

CAL. *Cup* 1 leaf, tubular, angular, with 5 shallow clefts, permanent, teeth awl-shaped, tapering to a point, nearly equal.

BLOSS. 1 petal, gaping. *Tube* very short. *Mouth* oblong, bulging downwards towards the base. *Upper lip* upright, somewhat egg-shaped, vaulted, generally notched at the end. *Lower lip* large, with 3 segments, the 2 outer segments reflected, the *middle* one very large, notched at the end, and folded back.

STAM. *Filaments* 4, 2 long and 2 short, awl-shaped; after flowering, bent to the sides of the mouth. *Anthers* simple.

PIST. *Germen* with 4 divisions. *Style* thread-shaped, agreeing in length and situation with the stamens. *Summit* cloven, acute.

S. VESS. none. The *Cup*, but little changed, contains the seeds.

SEEDS 4, egg-shaped, angular.

OBS. In S. *arvensis* the upper lip of the blossom is very entire

BALLO'TA. *Tourn.* 85.

CAL. *Involucrum* beneath the whirls, formed of strap-shaped leaves.

Cup 1 leaf, tubular, salver-shaped, regular, with 5 corners, and 10 scores, oblong, upright, permanent. *Rim* acute, open, plaited, with 5 teeth.

BLOSS. 1 petal gaping. *Tube* cylindrical, as long as the cup. *Upper lip* upright, egg-shaped, entire, scolloped, concave. *Lower lip* with 3 segments, blunt, the middle one the largest, notched at the end.

STAM. *Filaments* 4, 2 long and 2 short, awl-shaped, leaning towards and shorter than the upper lip. *Anthers* oblong, lateral.

Pist. *Germen* with 4 clefts. *Style* thread-shaped, in shape and situation similar to the stamens. *Summit* slender, cloven.

S. Vess. none. The *Cup* unchanged contains the seeds.

Seeds 4, egg-shaped.

Obs. It has the involucrum of the Clinopodium, the calyx of the Marrubium, and the blossom of the Stachys, but is most nearly allied to the Marrubium. Linn.

MARRU'BIUM. *Tourn.* 91.

Cal. *Cup* 1 leaf, salver-shaped, tubular, with 10 scores. *Rim* equal, open, generally with 10 teeth; *teeth* alternately smaller.

Bloss. 1 petal, gaping. *Tube* cylindrical. *Border* open. *Mouth* long, tubular. *Upper lip* upright, narrow, acute, cloven. *Lower lip* broader, reflected, with 3 shallow segments, *middle* segment broad, notched at the end; the *lateral* segments acute.

Stam. *Filaments* 4, 2 long and 2 short, shorter than the blossom, covered by the upper lip. *Anthers* simple.

Pist. *Germen* with 4 clefts. *Style* thread-shaped, agreeing in length and situation with the stamens. *Summit* cloven.

S. Vess. none. The *Cup* closed at the neck, but expanded at the rim, contains the seeds.

Seeds 4, rather oblong.

LEONU'RUS. *Tourn.* 87.

Cal. *Cup* 1 leaf, tubular, cylindrical, but angular with 5 edges, and 5 teeth, permanent.

Bloss. 1 petal, gaping. *Tube* narrow. *Border* opening, with a long mouth. *Upper lip* the longest, semi-cylindrical, concave, bulging, roundish and blunt at the end, entire, covered with soft hairs. *Lower lip* reflected, with 3 divisions. *Segments* spear-shaped, nearly equal.

Stam. *Filaments* 4, 2 long and 2 short, covered by the upper lip. *Anthers* oblong, compressed, cloven half way down, fixed sidewise, sprinkled with very small, solid, shining, elevated, globular particles.

Pist. *Germens* 4. *Style* thread-shaped, agreeing in length and situation with the stamens. *Summits* cloven, acute.

S. Vess. none. The *Cup* remaining unchanged contains the seeds within it.

Seeds 4, oblong, convex on one side, angular on the other.

Obs. The lip of the blossom varies in different species. (Reich.) In L. *Cardiaca* it is egg-shaped.

CLINOPO′DIUM. *Tourn.* 92.

Cal. *Involucrum* of many bristle-shaped leaves, as long as the cup, placed under the whirls.

Cup 1 leaf, cylindrical, very slightly curved. *Mouth* with 2 lips. *Upper lip* broader, with 3 segments, acute, reflected. *Lower lip* deeply divided, slender, bent inwards.

Bloss. 1 petal, gaping. *Tube* short, gradually widening into a mouth. *Upper lip* upright, concave, blunt, notched at the end. *Lower lip* with 3 clefts, blunt. *Middle Segment* broader, notched at the end.

Stam. *Filaments* 4, 2 long and 2 short, covered by the upper lip. *Anthers* roundish.

Pist. *Germen* with 4 divisions. *Style* thread-shaped, agreeing in length and situation with the stamens. *Summits* cloven, acute, compressed.

S. Vess. none. The *Cup* closing at the neck, and bellying out in the body, contains the seeds.

Seeds 4, egg-shaped.

ORIG′ANUM. *Tourn.* 94.

Cal. *Involucrum* spike-like, tiled with *Floral-leaves*, egg-shaped, coloured, compound.

Cup unequal, various.

Bloss. 1 petal, gaping. *Tube* cylindrical, compressed. *Upper lip* upright, flat, blunt, notched at the end. *Lower lip* with 3 clefts, segments nearly equal.

Stam. *Filaments* 4, 2 long and 2 short, thread-shaped, as long as the blossom. *Anthers* simple.

Pist. *Germen* with 4 clefts. *Style* thread-shaped, leaning towards the upper lip of the blossom. *Summits* very slightly cloven.

S. Vess. none. The *Cup* closing a little contains the seeds.

Seeds 4, egg-shaped.

OBS. The *Involucrum* of the cups constitutes its essential character. The *cup*, in some species, is nearly equal, with 5 teeth; in others it consists of 2 lips, the upper lip large and entire, the lower lip hardly perceptible; in others again, the cup is formed of 2 leaves. LINN.

THY'MUS. *Tourn.* 93.

CAL. *Cup* 1 leaf, tubular, cloven half way down into 2 lips, permanent. *Mouth* closed by soft hairs. *Upper lip* broader, flat, upright, with 3 teeth. *Lower lip* with 2 bristles, of equal length.

BLOSS. 1 petal, gaping. *Tube* as long as the cup. *Mouth* small. *Upper lip* short, flat, upright, notched at the end, blunt. *Lower lip* long, expanding, broader, with 3 segments, blunt; *middle Segment* broadest.

STAM. *Filaments* 4, 2 long, and 2 short, crooked. *Anthers* small.

PIST. *Germen* with 4 divisions. *Style* thread-shaped. *Summit* cloven, acute.

S. VESS. none. The *Cup* becoming narrow at the neck incloses the seeds.

SEEDS 4, small, roundish.

MELIS'SA. *Tourn.* 91 & 92, *Calamintha.*

CAL. *Cup* 1 leaf, somewhat bell-shaped, dry and skinny, a little expanding, angular, scored, permanent. *Mouth* with 2 lips. *Upper lip* with 3 teeth, reflected, expanding, flat. *Lower lip* short, rather pointed, divided.

BLOSS. 1 petal, gaping. *Tube* cylindrical. *Mouth* open. *Upper lip* short, upright, vaulted, roundish, cloven. *Lower lip* with 3 clefts, the *middle Segment* largest, heart-shaped.

STAM. *Filaments* 4, awl-shaped, 2 as long as the blossom, the other 2 but half as long. *Anthers* small, leaning together in pairs.

PIST. *Germen* with 4 clefts. *Style* thread-shaped, as long as the blossom, leaning along with the stamens under the upper lip of the blossom. *Summits* slender, cloven, reflected.

S. VESS. none. The *Cup* unchanged, but enlarging, contains the seeds.

SEEDS 4, egg-shaped.

MELIT'TIS. *Curt.* 68.

CAL. *Cup* 1 leaf, bell-shaped, cylindrical, straight. *Mouth* with 2 lips. *Upper lip* tall, notched, acute. *Lower lip* shorter, cloven, acute. *Segments* standing wide.

BLOSS. 1 petal, gaping. *Tube* much more slender than the cup. *Mouth* but little thicker than the tube. *Upper lip* upright, roundish, entire. *Lower lip* expanding, with 3 segments, blunt; *middle Segment* larger, flat, entire.

STAM. *Filaments* 4, the middle ones shorter than the outer ones, awl-shaped, standing under the upper lip. *Anthers* blunt, cloven, each pair forming a cross.

PIST. *Germen* blunt, with 4 clefts, covered with soft hairs. *Styles* thread-shaped, agreeing in length and situation with the stamens. *Summit* cloven, acute.

S. VESS. none. The *Cup* unchanged contains the seeds.

SEEDS four.

OBS. The lower lip of the calyx is sometimes scolloped. LINN.

SCUTELLA'RIA. *Tourn.* 64, *Cassida.*

CAL. *Cup* 1 leaf, very short, tubular. *Rim* almost entire, after flowering closed by a lid, which is formed by an expansion of the upper part of the cup.

BLOSS. 1 petal, gaping. *Tube* very short, bent backwards. *Mouth* long, compressed. *Upper lip* concave, 3-cleft. *Middle Segment* concave, notched at the end. *Lateral Segments* flat, acute, placed under the middle segment. *Lower lip* broad, notched at the end.

STAM. *Filaments* 4, 2 long and 2 short, concealed under the upper lip. *Anthers* small.

PIST. *Germen* with 4 divisions. *Style* thread-shaped, agreeing in length and situation with the stamens. *Summit* simple, crooked, taper.

S. VESS. none. The *Cup* 3-cornered, covered with a lid resembling a helmet, answering the purpose of a capsule, and opening at the lower margin.

SEEDS 4, roundish.

OBS. This genus is abundantly distinguishable from all others by its singular and beautiful calyx, which, inclosing the seeds as a seed-vessel, resembles, in its external appearance, a helmet with its crest.

PRUNEL'LA. *Tourn.* 84.

CAL. *Cup* 1 leaf, with 2 lips, mouth short, permanent. *Upper lip* flat, broad, lopped, with 3 very small teeth. *Lower lip* upright, narrow, acute, with a shallow cleft.

BLOSS. 1 petal, gaping. *Tube* short, cylindrical. *Mouth* oblong. *Upper lip* concave, entire, nodding. *Lower lip* reflected, blunt, with 3 segments, the *middle Segment* broadest, notched at the end, serrated.

STAM. *Filaments* 4, 2 a little longer than the other 2, awl-shaped, forked at the end. *Anthers* simple, fixed to the filaments beneath the top, and only to one of the divisions of the fork.

PIST. *Germen* with 4 divisions. *Style* thread-shaped, leaning along with the stamens towards the upper lip. *Summit* notched at the end.

S. VESS. none. The *Cup* closes and contains the seeds.

SEEDS 4, somewhat egg-shaped.

OBS. The essential character consists in the forked filament, as in the genus Crambe. LINN.

ANGIOSPERMIA.

BART'SIA. *Lightf.* 14.

CAL. *Cup* 1 leaf, tubular, permanent. *Mouth* blunt, cloven. *Segments* notched at the end, points coloured.

BLOSS. 1 petal, gaping. *Upper lip* upright, slender, entire, longer. *Lower lip* reflected, with 3 clefts, blunt, very small.

STAM. *Filaments* 4, 2 a little shorter than the other 2, bristle-shaped, as long as the upper lip. *Anthers* oblong, approaching, standing under the top of the upper lip.

PIST. *Germen* egg-shaped. *Style* thread-shaped, longer than the stamens. *Summit* blunt, nodding.

S. VESS. *Capsule* egg-shaped, compressed, tapering to a point, with 2 cells and 2 valves, partition opposite to the valves.

SEEDS numerous, angular, small.

OBS. This genus is a sort of connecting link between the Rhinanthus, Euphrasia, and Pedicularis, but distinguished by its coloured calyx. LINN.—If the coloured calyx be admitted as an essential generic mark, nearly half the Order must be placed in it. (Mr. Woodward.)—And the Bartsia *viscosa* has a calyx not at all coloured. (Mr. Giddy.)

RHINAN'THUS. *Tourn.* 77, *Pedicularis. Gærtn.* 54.

Cal. *Cup* 1 leaf, roundish, inflated, compressed, with 4 clefts, permanent.

Bloss. 1 petal, gaping. *Tube* nearly cylindrical, as long as the cup. *Border* open, compressed at the base. *Upper lip* helmet-shaped, compressed, notched at the end, narrower. *Lower lip* open, flat, with 3 shallow clefts, blunt; the *middle Segment* the broadest.

Stam. *Filaments* 4, 2 long and 2 short, nearly as long as the upper lip which conceals them. *Anthers* fixed sidewise, cloven at one end, hairy.

Pist. *Germen* egg-shaped, compressed. *Style* thread-shaped, agreeing in situation with the stamens, but longer. *Summit* blunt, bent inwards.

S. Vess. *Capsule* blunt, upright, compressed, cells 2, valves 2, partition opposite to the valves, opening at the edges.

Seeds many, compressed.

Obs. Rhinanthus *Crista galli* has a bordered capsule; seeds surrounded by a loose membrane; and a calyx equal, with 4 clefts. Linn.

EUPHRA'SIA. *Tourn.* 78. *Gærtn.* 54.

Cal. *Cup* 1 leaf, cylindrical, with 4 clefts, unequal, permanent.

Bloss. 1 petal, gaping. *Tube* as long as the cup. *Upper lip* concave, notched at the end. *Lower lip* expanding, with 3 divisions. *Segments* equal, blunt.

Stam. *Filaments* 4, thread-shaped, leaning under the upper lip. *Anthers* 2-lobed, the lower lobes of the lower anthers tapering into a little thorn.

Pist. *Germen* egg-shaped. *Style* thread-shaped, agreeing in shape and situation with the stamens. *Summit* blunt, entire.

S. Vess. *Capsule* egg-oblong, compressed, 2-celled. *Partition* opposite to the valves.

Seeds numerous, very small, roundish.

Obs. This description applies to the Euphr. *Odontites*, but the Euphr. *Officinalis* admits of the following remarks very justly made by Mr. Hudson. *Cup* tubular, bell-shaped; segments tapering to a point, equal. *Bloss.* lower lip with three shallow clefts, segments cloven, the middle one the largest. *Anthers* cloven at the base, the lobes at the base tapering into an awn. *Summit* a knob. *Capsule* 4-cornered at the base, nicked at the top.

MELAMPY'RUM. *Tourn.* 78. *Gærtn.* 53.

CAL. *Cup* 1 leaf, tubular, with 4 shallow clefts. *Segments* slender, permanent.

BLOSS. 1 petal, gaping. *Tube* oblong, bent back. *Border* compressed, *Upper lip* helmet-shaped, compressed, notched at the end; lateral margins bent back. *Lower lip* flat, upright, as long as the upper, with 3 shallow segments, blunt, marked with 2 projections in the middle.

STAM. *Filaments* 4, 2 long and 2 short, awl-shaped, crooked, concealed under the upper lip. *Anthers* oblong.

PIST. *Germen* tapering to a point. *Style* simple, agreeing in length and situation with the stamens. *Summit* blunt.

S. VESS. *Capsule* oblong, oblique, tapering to a point, compressed; upper edge, convex, lower edge straight; cells 2, valves 2, *partition* opposite to the valves, opening at the upper seam.

SEEDS 2, egg-shaped, bulging, bordered at the base.

LATHRÆ'A. *Tourn.* 424, *Clandestina. Gærtn.* 52.

CAL. *Cup* 1 leaf, bell-shaped, straight. *Mouth* with 4 deep clefts.

BLOSS. 1 petal, gaping. *Tube* longer than the cup, *Border* gaping, bellying. *Upper lip* concave, helmet-shaped, broad, with a narrow hooked top. *Lower lip* smaller, reflected, blunt, with 3 clefts.

Nectary a gland notched at the end, depressed on each side, very short, situated upon the receptacle of the flower, at one corner of the germen.

STAM. *Filaments* 4, awl-shaped, as long as the blossom, concealed under the upper lip. *Anthers* blunt, depressed, approaching.

PIST. *Germen* globular, compressed. *Style* thread-shaped, agreeing in length and situation with the stamens. *Summit* lopped, nodding.

S. VESS. *Capsule* roundish, blunt, but furnished with a small point, with 1 cell, and 2 elastic valves, surrounded by the cup, which is large and expanding.

SEEDS few, globular, fixed to the middle of the valves.

OBS. On account of its nectariferous gland, it approaches near to the Orobanche. LINN.

PEDICULA'RIS. *Tourn.* 77, A. D. E. H. I. K. L. *Gærtn.* 53.

CAL. *Cup* 1 leaf, roundish, bellying. *Mouth* with 5 clefts, equal, permanent.

BLOSS. 1 petal, gaping. *Tube* oblong, bulging. *Upper lip* helmet-shaped, upright, compressed, narrower, notched at the end. *Lower lip* expanding, flat, with 3 shallow segments, blunt. *Middle Segment* the narrowest.

STAM. *Filaments* 4, 2 long and 2 short, nearly as long as the upper lip, under which they lie concealed. *Anthers* fixed, sidewise, roundish, compressed.

PIST. *Germen* roundish. *Style* thread-shaped, agreeing in situation with the stamens, but longer. *Summit* blunt, bent inwards.

S. VESS. *Capsule* roundish, sharp-pointed, oblique, 2-celled, opening at the top. *Partition* opposite to the valves.

SEEDS many, egg-shaped, angular. *Receptacles* nearly globular, in the base of the capsule.

OBS. Capsule for the most part oblique. In some species the cup is cloven at the rim into 2 parts.

ANTIRRHI'NUM. *Tourn.* 75 & 76, *Linaria.* *Gærtn.* 53.

CAL. *Cup* with 5 divisions, permanent. *Segments* oblong, the 2 *lower* more expanding.

BLOSS. 1 petal, gaping. *Tube* oblong, bulging. *Border* with 2 lips. *Upper lip* cloven, reflected sidewise. *Lower lip* with 3 clefts, blunt. *Palate* convex, mouth generally closed by a projection of the lower lip, which is channelled on the under side.

Nectary projecting backwards from the base of the blossom.

STAM. *Filaments* 4, 2 short and 2 long, nearly as long as the blossom, and inclosed by the upper lip. *Anthers* approaching.

PIST. *Germen* roundish. *Style* simple, agreeing in length and situation with the stamens. *Summit* blunt.

S. VESS. *Capsule* roundish, blunt, cells 2. Figure and manner of opening different in different species.

SEEDS many. *Receptacles* kidney-shaped, solitary, fixed to the partition.

Obs. The *nectary* and the *seed-vessel* differ greatly in the different species. In some, the former is long and awl-shaped, and the latter opens equally. In others, the nectary is blunt, scarcely protuberating; the capsule unequal at the base, opening at the top obliquely; and, in others again, still different.

SCROPHULA'RIA. *Tourn.* 74. *Gærtn.* 53.

Cal. *Cup* 1 leaf, with 5 clefts, permanent. *Segments* rounded, shorter than the blossom.

Bloss. 1 petal, unequal. *Tube* globular, large, inflated. *Border* very small, with 5 divisions. The 2 *upper Segments* larger than the others, upright; the 2 *lateral* ones open; the *lower* reflected.

Stam. *Filaments* 4, strap-shaped, declining, as long as the blossoms; 2 of them ripening later than the other 2. *Anthers* double.

Pist. *Germen* egg-shaped. *Style* simple, agreeing in length and situation with the stamens. *Summit* simple.

S. Vess. *Capsule* roundish, tapering to a point, cells 2, valves 2, partition formed by the edges of the valves turning in, opening at the top.

Seeds many, small. *Receptacle* single, roundish, extending itself into each cell.

Obs. In the mouth of the blossom, beneath the upper segments, lies another little segment resembling a lip; but this is not common to every species. The *blossom*, in this genus, should be considered as reversed. The *upper lip* smaller, bowed back, rounded, the stamens bowed down towards it; the lateral segments scolloped, rounded, equal to the upper; the *lower lip* larger, open, with 2 divisions; the *intermediate lip* very small, placed in the fore part. Linn.—When ripe, an oval opening appears in the partition. (Gærtn.)

DIGITA'LIS. *Tourn.* 73. *Gærtn.* 53.

Cal. *Cup* with 5 divisions. *Segments* roundish, acute, permanent, the upper narrower.

Bloss. 1 petal, bell-shaped. *Tube* large, expanding, bulging on the under side, cylindrical and narrow at the base. *Border* small, with 4 clefts. *Upper Segment* most expanded, notched at the end. *Lower Segment* largest.

Stam. *Filaments* 4, 2 long and 2 short, awl-shaped, fixed to the base of the blossom, declining. *Anthers* cloven, tapering to a point at one end.

Pist. *Germen* tapering to a point. *Style* simple, standing along with the stamens. *Summit* acute.

S. Vess. *Capsule* egg-shaped, as long as the cup, tapering to a point, cells 2, valves 2, tearing open in 2 directions. *Partition* double, formed by the edges of the valves, turned in.

Seeds many, small.

LINNÆ'A. *Fl. dan.* 3.

Cal. *Cup* double.

Cup of the *Fruit* beneath, 4-leaved: 2 leafits opposite, very small, acute, the other 2 elliptical, concave, upright, rough with hairs, embracing the germen, converging, permanent.

Cup of the *Flowers* superior, of 1 leaf with 5 divisions, upright, slender, acute, equal.

Bloss. 1 petal, bell-shaped, with 5 shallow clefts, blunt, nearly equal, twice the size of the flower cup.

Stam. *Filaments* 4, awl-shaped, fixed to the bottom of the blossom, 2 very small, the other 2 near together, longer, but shorter than the blossom. *Anthers* compressed, vane-like.

Pist. *Germen* roundish, beneath. *Style* thread-shaped, straight, leaning, as long as the blossom. *Summit* globular.

S. Vess. *Berry* juiceless, egg-shaped, 3-celled, covered by the rough hairy glutinous cup of the fruit, deciduous.

Seeds 2, roundish.

SIBTHOR'PIA. *Gærtn.* 55.

Cal. *Cup* 1 leaf; turban-shaped, with 5 divisions, expanding; *leafits* egg-shaped, permanent.

Bloss. 1 petal, with 5 divisions, expanding, equal, as long as the cup. *Segments* rounded.

Stam. *Filaments* 4, hair-like, 2 of them approaching. *Anthers* heart-oblong.

Pist. *Germen* roundish, compressed. Style cylindrical, thicker than the filaments, as long as the blossom. *Summit* a simple knob, depressed.

S. Vess. *Capsule* compressed, round and flat, bellying on each side, edges acute, valves 2, cells 2, partition transverse.

SEEDS several, roundish-oblong, convex on one side, flat on the other. *Receptacle* globular, fixed to the middle of the partition.

LIMOSEL'LA. *Gærtn.* 50.

CAL. *Cup* 1 leaf, with 5 shallow clefts, acute, upright, permanent.

BLOSS. 1 petal, bell-shaped, upright, equal, with 5 shallow clefts, acute, small. *Segments* expanding.

STAM. *Filaments* 4, upright, 2 leaning to the same side, shorter than the blossom. *Anthers* simple.

PIST. *Germen* oblong, blunt, of 2 cells. *Style* simple, as long as the stamens, declining. *Summit* globular.

S. VESS. *Capsule* egg-shaped, half inclosed in the cup, with 1 cell, and 2 valves. *Partition* divided below.

SEEDS many, oval. *Receptacle* egg-shaped, large.

OROBAN'CHE. *Tourn.* 81.

CAL. *Cup* 1 leaf, with 2 or 5 clefts, upright, coloured, permanent.

BLOSS. 1 petal, gaping. *Tube* leaning, large, bellying. *Border* expanded. *Upper lip* concave, open, notched at the end. *Lower lip* reflected, with 3 clefts, unequal at the edge. *Segments* nearly equal.

STAM. *Filaments* 4, 2 long and 2 short, awl-shaped, concealed under the upper lip. *Anthers* upright, approaching, shorter than the border.

Nectary a gland at the base of the germen.

PIST. *Germen* oblong. *Style* simple, agreeing in length and situation with the stamens. *Summit* with a shallow cleft, blunt, thick, nodding.

S. VESS. *Capsule* egg-oblong, tapering to a point, with 1 cell, and 2 valves.

SEEDS numerous, very small. *Receptacles* 4, strap-shaped, lateral, connected.

OBS. Each segment of the summit notched at the end LINN. Calyx and blossom different in different species. (Reich.)

CLASS XV.

TETRADYNAMIA.

2 Stamens shorter.

IN the flowers of this Class there are 6 Stamens; 4 of them long, and 2 short. (It is also worthy of observation, that the flowers of this Class have uniformly 4 Petals. An attention to this circumstance will probably save the learner some trouble, as the difference of length in the Stamens is not always very obvious, and especially as the plants of the Hexandria Class have none of them 4 Petals.)

The ORDERS are 2, and are distinguished by the figure of the seed-vessel, which, in the 1st Order is a broad and short POUCH; that is, a roundish flat seed-vessel, furnished with a *Style*, which is frequently as long as the seed-vessel itself. In the 2d Order, the seed-vessel is a long POD; that is, a very long seed-vessel, without any remarkable *Style*.

The Plants of this Class admit of the following

NATURAL CHARACTER.

CAL. *Cup* oblong, of 4 leaves, deciduous. *Leafits* egg-oblong, concave, blunt, approaching, standing in opposite pairs, bulging at the base.

The *Nectary* is formed of the calyx, which on this account bulges at the base.

BLOSS. cross-shaped. *Petals* 4, equal. *Claws* flattish, awl-shaped upright, generally longer than the *cup*. *Border* flat. *Limbs* broadest towards the end, blunt, hardly touching one another at the edges. The petals fixed in the same circle with the stamens.

STAM. *Filaments* 6, awl-shaped, upright, the 2 opposite ones as long as the cup, the other 4 somewhat longer, but shorter than the blossom. *Anthers* rather oblong, tapering to a point, thickest at the base, upright, but with the top bent outwards.

Nectariferous glands, which differ in different genera, grow near the stamens, and are mostly fixed at the base of the shorter filaments, which are generally bent outwards, to prevent the compression of the glands, and therefore appear shorter than the others.

Pist. *Germen* superior, daily growing taller. *Style* the length of the longest stamens, but in some genera there is no style. *Summit* blunt.

S. Vess. *Pod* with 2 valves, often with 2 cells, opening from the base to the point. *Partition* projecting beyond the points of the valves, and occupying the place of the style.

Seeds roundish, inclining downwards, lodged in the partition lengthwise and alternately. *Receptacle* strap-shaped, surrounding the partition, and lodged in the seams of the seed-vessel.

Obs. This class is truly natural, and has been considered as such by all the best systematic writers, nevertheless, they have thrown into it one or more genera that do not naturally belong to it; but this we have avoided. The plants of this Class are universally called *Anti-scorbutic:* their taste is acrid and watery; they lose most of their virtues by drying. None of them are poisonous.

In moist situations, and wet seasons, they are most acrimonious. Thus the Cochlearia *Armoracia* (Horse-radish) growing near water, is so very acrid, that it can scarcely be used; and Brassica *Rapa,* (the Turnep) whose root in a dry sandy soil is so succulent and sweet, in wet stiff lands is hard and acrimonious.

TETRADYNAMIA. (4 Stamens longer.)

Siliculosa. (Pouch, or broad Pod.)

Myagrum.
Bunias.
Crambe.
Isatis.
Vella.
Subularia.
Draba.
Lepidium.
Thlaspi.
Cochlearia.
Iberis.

Siliquosa. (long Pod.)

Dentaria.
Cardamine.
Sisymbrium.
Erysimum.
Cheiranthus.
Hesperis.
Arabis.
Turritis.
Brassica.
Sinapis.
Raphanus.

SILICULOSA.

MY'AGRUM. *Tourn.* 99. *Gærtn.* 141.

Cal. *Cup* 4 leaves; *leafits* egg-oblong, concave, standing open, coloured, deciduous.

Bloss. 4 petals, forming a cross. *Petals* flat, circular, blunt; *claws* slender.

Stam. *Filaments* 6, as long as the cup, the 4 opposite ones rather longer than the other 2. *Anthers* simple.

Pist. *Germen* egg-shaped. *Style* thread-shaped, as long as the cup. *Summit* blunt.

S. Vess. *Pouch* inversely heart-shaped, somewhat compressed, entire, rigid, terminated at the point by a rigid, conical style. *Valves* 2. (Some of the cells often empty.)

Seeds roundish.

Obs. Myagrum *sativum* is the only British plant that has been referred to this genus, but it ill accords with its characters; on which account Professor Gmelin has constituted a new genus called Mœnchia, which includes the Myagrum *sativum*, Draba *aizoides*, Alyssum *incanum*, and *campestre*.

BU'NIAS. *Tourn.* 103, *Erucago. Gærtn.* 142.

Cal. *Cup* 4 leaves; *leafits* egg-oblong, expanding, deciduous.

Bloss. 4 petals, forming a cross. *Petals* inversely egg-shaped, twice as long as the cup; *claws* taper, upright.

Stam. *Filaments* 6, as long as the cup, the 2 opposite ones not quite so long. *Anthers* upright, cloven at the base.

Pist. *Germen* oblong. *Style* none. *Summit* blunt.

S. Vess. *Pouch* irregular, egg-oblong, with 4 sides, edges with 1 or 2 projecting points, not opening, deciduous.

Seeds few, roundish, 1 placed under each point of the pouch.

CRAM'BE. *Tourn.* 100 & 99, *Rapistrum. Gærtn.* 142.

Cal. *Cup* 4 leaves; *leafits* egg-shaped, channelled, rather expanding, deciduous.

Bloss. 4 petals, forming a cross. *Petals* large, blunt, broad, expanding; *claws* upright, but standing rather open, as long as the cup.

Stam. *Filaments* 6, 2 of them as long as the cup, the other 4 longer, and cloven at the end. *Anthers* simple, fixed to the outermost division of the filaments.
Nectariferous Glands placed on each side, between the blossom and the longer stamens.
Pist. *Germen* oblong. *Style* none. *Summit* rather thick.
S. Vess. *Berry* dry, globular, of 1 cell, deciduous.
Seed single, roundish.

Obs. The cloven tops of the filaments constitute the essential character. Linn.

I'SATIS. *Tourn.* 100. *Gærtn.* 142.

Cal. *Cup* 4 leaves; *leafits* egg-shaped, rather expanding, coloured, deciduous.
Bloss. 4 petals, forming a cross. *Petals* oblong, blunt, expanding, gradually tapering into *claws*.
Stam. *Filaments* 6, upright, but expanding, as long as the blossom, but 2 of them shorter. *Anthers* oblong, lateral.
Pist. *Germen* oblong, 2-edged, compressed, as long as the shorter stamens. *Style* none. *Summit* a blunt knob.
S. Vess. *Pouch* oblong-spear-shaped, blunt, compressed, 2-edged, with 1 cell, not opening. *Valves* 2, boat-shaped, compressed, keeled, deciduous.
Seed single, egg-shaped, in the centre of the seed-vessel.

VEL'LA. *Gærtn.* 141.

Cal. *Cup* 4 leaves, upright, cylindrical; *leafits* strap-shaped, blunt, deciduous.
Bloss. 4 petals, forming a cross. *Petals* inversely egg-shaped, expanding; *claws* as long as the cup.
Stam. *Filaments* 6, as long as the cup, the 4 opposite ones a little longer than the other 2. *Anthers* simple.
Pist. *Germen* egg-shaped. *Style* conical. *Summit* simple.
S. Vess. *Pouch* globular, entire. *Cells* 2. *Partition* twice as large as the pouch; the part extending beyond the pouch egg-shaped, and upright.
Seeds several, roundish.

SUBULA'RIA. *Fl. dan.* 35.

CAL. *Cup* 4 leaves; *leafits* egg-shaped, concave, a little expanding, deciduous.

BLOSS. 4 petals, forming a cross. *Petals* inversely egg-shaped, entire, rather larger than the cup.

STAM. *Filaments* 6, shorter than the blossom, the 2 standing opposite still shorter. *Anthers* simple.

PIST. *Germen* egg-shaped. *Style* shorter than the pouch. *Summit* blunt.

S. VESS. *Pouch* egg-shaped, somewhat compressed, entire, furnished with a very short style. *Cells* 2. *Partition* placed in a contrary direction to the valves, which are egg-shaped and concave.

SEEDS several, very minute, roundish.

DRA'BA. *Gærtn.* 141.

CAL. *Cup* 4 leaves; *leafits* egg-shaped, concave, upright but expanding, deciduous.

BLOSS. 4 petals, forming a cross; *petals* oblong, rather expanding; *claws* very minute.

STAM. *Filaments* 6, as long as the cup, 4 opposite ones a little longer than the other 2, upright, expanding. *Anthers* simple.

PIST. *Germen* egg-shaped. *Style* hardly any. *Summit* a flat knob.

S. VESS. *Pouch* oval-oblong, compressed, entire, without a style. *Cells* 2. *Partition* parallel to the valves. *Valves* flat, but a little concave.

SEEDS many, small, roundish.

OBS. In some species the petals are divided down to the base, in others they are only notched at the end, and in others again they are quite entire. The essential Character consists in the pouch being oval-oblong, compressed, and almost without a style.—These circumstances readily distinguish it from the Alyssum, the Subularia, and the Lunaria. LINN.

LEPID'IUM. *Tourn.* 103. *Gærtn.* 141.

CAL. *Cup* 4 leaves; *leafits* egg-shaped, concave, deciduous.

BLOSS. 4 petals, forming a cross; *petals* inversely egg-shaped, twice as long as the cup; *claws* narrow.

STAM. *Filaments* 6, awl-shaped, as long as the cup, the 2 opposite ones shorter than the others. *Anthers* simple.

PIST. *Germen* heart-shaped. *Style* simple, as long as the stamens. *Summit* blunt.

S. VESS. *Pouch* heart-shaped, notched at the end, compressed, sharp at the edge. *Cells* 2. *Valves* boat-shaped, keeled. *Partition* spear-shaped, placed in a contrary direction to the valves.

SEEDS several, egg-shaped, but tapering to a point, narrower at the base, inclining downwards.

OBS. L. *ruderale* has only 1 seed in each cell. (ST.) The Lepidium *anglicum* has either 2 or 4 stamens only, as is also the case with the L. *ruderale.*

THLAS'PI. *Tourn.* 101. *Gærtn.* 141.

CAL. *Cup* 4 leaves; *leafits* egg-shaped, concave, upright, but expanding, deciduous.

BLOSS. 4 petals, forming a cross; *petals* inversely egg-shaped, twice as long as the cup; *claws* narrow.

STAM. *Filaments* 6, half as long as the blossom, the 2 opposite ones shorter than the others. *Anthers* tapering to a point.

PIST. *Germen* circular, compressed, notched at the end. *Style* simple, as long as the stamens. *Summit* blunt.

S. VESS. *Pouch* compressed, inversely heart-shaped, notched at the end, the depth of the notch being equal to the length of the style. *Cells* 2. *Partition* spear-shaped. *Valves* boat-shaped, bordered with a keel.

SEEDS many, inclining, fixed to the seams.

OBS. In Thlapsi *Bursa-pastoris* the pouch is inversely heart-shaped, but without a border; but in some other species it is surrounded by a sharp border. LINN.—In T. *campestre* there is only one seed in each cell. ST.

COCHLEA'RIA. *Tourn.* 101.

CAL. *Cup* 4 leaves; *leafits* egg-shaped, concave, standing open, deciduous.

BLOSS. 4 petals, forming a cross. *Petals* inversely egg-shaped, expanding, twice as large as the cup; *claws* narrow, shorter than the cup, standing wide.

STAM. *Filaments* 6, awl-shaped, as long as the cup, the 2 opposite ones shorter than the others. *Anthers* blunt, compressed.

PIST. *Germen* heart-shaped. *Style* simple, very short, permanent. *Summit* blunt.

S. VESS. *Pouch* heart-shaped, bulging, turgid, 2-celled, notched at the end, furnished with a style, rough. *Valves* bulging, blunt.

SEEDS, about 4 in each cell.

I'BERIS. *Gærtn.* 141.

CAL. *Cup* 4 leaves; *leafits* inversely egg-shaped, concave, expanding, small, equal, deciduous.

BLOSS. 4 petals, unequal. *Petals* inversely egg-shaped, blunt, expanding, the 2 *outer* ones much larger, equal, the 2 *inner* small, reflected; *claws* oblong, upright.

STAM. *Filaments* 6, awl-shaped, upright, the 2 lateral ones shortest. *Anthers* roundish.

PIST. *Germen* roundish, compressed. *Style* simple, short. *Summit* blunt.

S. VESS. *Pouch* upright, nearly circular, compressed, notched at the end, encompassed by an acute border. *Cells* 2. *Partition* spear-shaped. *Valves* boat-shaped, keeled, compressed.

SEEDS several, somewhat egg-shaped.

SILIQUOSA.

DENTA'RIA. *Tourn.* 110.

CAL. *Cup* 4 leaves; *leafits* egg-oblong, approaching towards the top, blunt, deciduous.

BLOSS. 4 petals, forming a cross. *Petals* circular, blunt, very slightly notched at the end, flat, ending in *claws* as long as the cup.

STAM. *Filaments* 6, awl-shaped, as long as the cup, 2 of them shorter. *Anthers* heart-oblong, upright.

PIST. *Germen* oblong, the length of the stamens. *Style* very short and thick. *Summit* blunt, notched at the end.

S. VESS. *Pod* long, cylindrical; cells 2. *Valves* 2, opening with a jerk, and the valves rolling back. *Partition* rather longer than the valves.

SEEDS many, somewhat egg-shaped.

CARDAM'INE. *Tourn.* 109. *Gærtn.* 143.

CAL. *Cup* 4 leaves; *leafits* egg-oblong, blunt, rather open, bulging, small, deciduous.

BLOSS. 4 petals, forming a cross. *Petals* oblong-egg-shaped, greatly expanded, ending in *claws*, which are upright, and twice as long as the cup.

STAM. *Filaments* 6, awl-shaped, the 2 opposite ones twice as long as the cup, the other 4 still longer. *Anthers* small, heart-oblong, upright.

PIST. *Germen* slender, cylindrical, as long as the stamens. *Style* none. *Summit* a blunt knob, entire.

S. VESS. *Pod* long, cylindrical, but compressed. *Cells* 2. *Valves* 2, when they open rolling back in a spiral.

SEEDS many, roundish.

OBS. One species is often found destitute of the 2 shorter stamens; in some others the petals are wanting. In *C. petræa* the valves open at the base, but do not roll back. LINN.

SISYM'BRIUM. *Tourn.* 109.

CAL. *Cup* 4 leaves; *leafits* spear-strap-shaped, expanding, coloured, deciduous.

BLOSS. 4 petals, forming a cross. *Petals* oblong, expanding, generally smaller than the cup; *claws* very minute.

STAM. *Filaments* 6, longer than the cup, the 2 opposite ones, somewhat shorter. *Anthers* simple.

PIST. *Germen* oblong, thread-shaped. *Style* very short. *Summit* blunt.

S. VESS. *Pod* long, crooked, bulging, cylindrical; *cells* 2. *Valves* 2, nearly straight when open, rather shorter than the partition.

SEEDS many, small.

OBS. S. *Sophia* has the petals shorter than the cup; and a very long and very slender pod. In S. *sylvestre* and S. *amphibium*, the pod is bulging, and very short. LINN.

ERYS'IMUM. *Tourn.* 111. *Gærtn.* 143.

Cal. *Cup* 4 leaves; *leafits* egg-oblong, parallel, but approaching, coloured, deciduous.

Bloss. 4 petals, forming a cross. *Petals* oblong, flat, very blunt at the end; *claws* as long as the cup, upright.

Nectariferous Gland double, on the inner side of the shorter filament.

Stam. *Filaments* 6, as long as the cup, the 2 opposite ones shorter than the others. *Anthers* simple.

Pist. *Germen* strap-shaped, 4-edged, as long as the stamens. *Style* very short. *Summit* a small knob, permanent.

S. Vess. *Pod* long, strap-shaped, stiff, and straight, exactly 4-cornered, with 2 valves, and 2 cells.

Seeds many, small, roundish.

CHEIRAN'THUS. *Tourn.* 107, *Leucojum*. *Gærtn.* 143.

Cal. *Cup* 4 leaves, compressed; *leafits* spear-shaped, concave, upright, parallel, but approaching towards the top, deciduous, the 2 *outer* bulging at the base.

Bloss. 4 petals, forming a cross. *Petals* circular, longer than the cup; *claws* as long as the cup.

Stam. *Filaments* 6, awl-shaped, parallel, as long as the cup, 2 of them shorter and bulging at the base, within the cup. *Anthers* upright, cloven at the base, acute and reflected at the top.

A *Nectariferous Gland* surrounding the base of the short stamen on each side.

Pist. *Germen* prism-shaped, with 4 edges, as long as the stamens, with a small tubercle on each side the base. *Style* very short, compressed. *Summit* oblong, divided, reflected, thick, permanent.

S. Vess. *Pod* long, compressed, the 2 opposite angles obliterated and marked with a little tooth; *cells* 2, valves 2, furnished with a very short style, and an upright cloven summit.

Seeds many, pendant, alternate, somewhat egg-shaped, compressed, with a membranaceous border.

Obs. The little tooth on each side of the germen, in some species, almost disappears, in others it grows larger. In the Ch. *tricuspidatus* the pod has 3 points at the end. Linn.

HES'PERIS. *Tourn.* 108.

CAL. *Cup* 4 leaves; *leafits* spear-strap-shaped, parallel, approaching towards the top, and lying on each other, wide at the base, deciduous, the 2 *opposite* ones bulging at the base.

BLOSS. 4 petals, forming a cross. *Petals* oblong, the length of the cup a little bent obliquely to the left, ending in taper *claws* which are as long as the cup.

STAM. *Filaments* 6, awl-shaped, as long as the tube, 2 of them only half as long. *Anthers* strap-shaped, upright, reflected at the top.

Nectariferous Glands tapering to a point, placed between the shorter stamens and the germen, surrounding the stamen.

PIST. *Germen* as long as the cup, prism-shaped, with 4 edges. *Style* none. *Summit* divided, placed inwards, oblong, upright, forked at the base, approaching at the top, shrivelling.

S. VESS. *Pod* long, compressed and flat, stiff and straight, of 2 cells. *Valves* 2, as long as the partition.

SEEDS many, egg-shaped, compressed.

AR'ABIS. *E. bot.* 178. *Curt.* ii. 13.

CAL. *Cup* 4-leaved, deciduous; *leafits* parallel, and approaching at the top, 2 of them opposite, egg-oblong, acute, larger, a little prominent at the base, bulging, concave; the *other* 2, strap-shaped, upright.

BLOSS. 4 petals, forming a cross. *Petals* egg-shaped, expanding, ending in *claws* as long as the cup.

Nectaries 4, each composed of a little, reflected, permanent scale, fixed to the receptacle at the bottom, and on the inner side of the leaves of the cup; reflected, permanent.

STAM. *Filaments* 6, awl-shaped, upright, 2 as long as the cup, 4 twice as long. *Anthers* heart-shaped, upright.

PIST. *Germen* cylindrical, as long as the stamens. *Style* none. *Summit* blunt, entire.

S. VESS. *Pod* compressed, very long, strap-shaped, unequal from protuberances occasioned by the seeds. *Valves* mostly as long as the partition.

SEEDS many, roundish, compressed.

OBS. The nectaries and the summit demonstrate that it is neither a Cheiranthus nor a Hesperis. LINN.

TURRI'TIS. *Gærtn.* 143.

Cal. *Cup* 4 leaves; *leafits* egg-oblong, parallel, but approaching towards the top, deciduous.

Bloss. 4 petals, forming a cross. *Petals* egg-oblong, blunt, upright, entire; *claws* upright.

Stam. *Filaments* 6, awl-shaped, upright, as long as the tube, 2 of them shorter. *Anthers* simple.

Pist. *Germen* as long as the blossom, cylindrical, a little compressed. *Style* none. *Summit* blunt.

S. Vess. *Pod* exceedingly long, stiff and straight, with 4 edges, but 2 of the edges, which are opposite, almost obliterated, and somewhat compressed; *cells* 2. *Valves* 2, rather shorter than the partition.

Seeds very numerous, roundish, notched at the end.

BRAS'SICA. *Tourn.* 106 *&* 113, *Rapa.* *Gærtn.* 143.

Cal. *Cup* 4 upright leaves; *leafits* spear-strap-shaped, concave and channelled, bulging at the base, parallel, deciduous.

Bloss. 4 petals, forming a cross. *Petals* nearly egg-shaped, flat, expanding, entire, gradually tapering into *claws*, which are nearly as long as the cup.

Nectariferous Glands 4, egg-shaped, 1 placed between each short stamen and the germen, and 1 between each pair of the longer stamens and the cup.

Stam. *Filaments* 6, awl-shaped, upright, the 2 opposite ones as long as the cup, the other 4 longer. *Anthers* upright, tapering to a point.

Pist. *Germen* cylindrical, as long as the stamens. *Style* short, as thick as the germen. *Summit* a knob, entire.

S. Vess. *Pod* long, nearly cylindrical, but depressed on each side. *Partition* projecting at the end, cylindrical; *cells* 2. *Valves* 2, shorter than the partition.

Seeds many, globular.

Obs. In Brassica *Rapa* the cup and the blossom are of the same colour. Linn.

SINA'PIS. *Tourn.* 112. *Gærtn.* 143.

Cal. *Cup* 4 leaves, expanding; *leafits* strap-shaped, concave, channelled, standing crosswise and expanding, deciduous.

Bloss. 4 petals, forming a cross. *Petals* circular, expanding, entire; *claws* upright, strap-shaped, rather shorter than the cup, sitting.

Nectariferous Glands 4, egg-shaped, 1 between each shorter stamen and the pistil, and 1 between each pair of longer stamens and the cup.

Stam. *Filaments* 6, awl-shaped, upright, the 2 opposite ones as long as the cup, the other 4 longer. *Anthers* upright, but expanding, tapering to a point.

Pist. *Germen* cylindrical. *Style* as long as the germen, and as tall as the stamens. *Summit* a knob, entire.

S. Vess. *Pod* oblong, with protuberances on the lower part, rough; *cells* 2. *Valves* 2. *Partition* large, compressed, generally twice as long as the valves.

Seeds many, globular.

Obs. Differs from the Brassica in having the claws of the petals upright, and the leafits of the calyx expanding. Linn.

RAPH'ANUS. *Tourn.* 114 & 115, *Raphanistrum. Gærtn.* 143.

Cal. *Cup* 4 leaves, upright; *leafits* oblong, parallel, approaching, deciduous, bulging at the base.

Bloss. 4 petals, forming a cross. *Petals* inversely heart-shaped, expanding; *claws* a little longer than the cup.

Nectariferous Glands 4, 1 between each shorter stamen and the pistil, and 1 on each side, between the longer stamens and the cup.

Stam. *Filaments* 6, awl-shaped, upright, 2 opposite ones as long as the cup, the other 4 as long as the claws of the blossom. *Anthers* simple.

Pist. *Germen* oblong, bellying, slender upwards, as long as the stamens. *Style* hardly any. *Summit* a knob, entire.

S. Vess. *Pod* oblong, but pointed, bellying with protuberances as if jointed, round.

Seeds roundish, smooth.

Obs. The Raph. *Raphanistrum* has a jointed pod, which separates at the joints. Linn.

CLASS XVI.

MONADELPHIA.

IN this Class the filaments are all united together at the bottom, but separate at the top. The ORDERS are determined by the number of stamens. The flowers admit of the following

NATURAL CHARACTER.

CAL. *Cup* always present, permanent, in many instances double.

BLOSS. *Petals* 5, inversely heart-shaped, the edge of one lying over the edge of the next, from the right to the left.

STAM. *Filaments* united at the bottom, separate at the top; the outer ones the shortest. *Anthers* fixed sidewise.

PIST. *Receptacle of the fruit* projecting in the centre of the flower.

Germens upright, surrounding the top of the receptacle in a jointed circle. *Styles* united at the bottom into one body with the receptacle, but separated at the top into as many parts as there are germens. *Summits* expanding, slender.

S. VESS. *Capsules* divided into as many cells as there are styles; of various figures in different genera; and often composed of the same number of seed-coats united.

SEEDS kidney-shaped.

OBS. The plants of this natural class were considered by Tourn. as having only 1 petal. But all the petals are distinct at the base, though by the intervention of the united filaments, they cohere all together as one body; on which account they may more properly be considered as having 5 petals.

The fruit does not afford sufficient marks whereby to distinguish the genera, in this class; but the *calyx* is of the utmost importance, and furnishes invariable characters. LINN. The petals are truly a continuation of the cylindrical sheath, formed by the united filaments, which incloses the styles and germens as it descends; when rising upwards, it spreads out into petals.

MONADELPHIA. (Filaments united.)

TRIANDRIA. (3 Stamens.)

Juniperus.

DECANDRIA. (10 Stamens.)

Geranium.

POLYANDRIA. (many Stamens.)

Altheæ. *Malva.* *Lavatera.*
Taxus. *Pinus.*

TRIANDRIA.

JUNIP'ERUS. *Tourn.* 361. *Gærtn.* 91.

Male flowers.

Cal. *Catkin* conical, consisting of a common spike-stalk, in which 3 opposite flowers are placed in a triple row, and a 10th flower at the end. At the base of each flower is a

Scale; broad, short, fixed sidewise to a little pillar like a foot-stalk.

Bloss. none.

Stam. *Filaments* (in the *terminating* flower) 3, awl-shaped, united at the bottom into one body; in the *lateral* flowers hardly perceptible. *Anthers* 3, distinct in the *terminating* flower; but in the *lateral* flowers fixed to the scale of the calyx.

Female flowers.

Cal. *Cup* with 3 divisions, very small, growing to the germen, permanent.

Bloss. *Petals* 3, rigid, acute, permanent.

Pist. *Germen* beneath. *Styles* 3, simple. *Summits* simple.

S. Vess. *Berry* fleshy, roundish, marked on the lower part with 3 opposite tubercles which were formerly the cup, and marked at the top by 3 little teeth which were originally the petals.

Seeds 3, bony, convex on one side, angular on the other, oblong.

DECANDRIA.

GERA'NIUM. *Tourn.* 142. *Gærtn.* 79.

Cal. *Cup* 5 leaves, or 1 leaf with 5 divisions; *leafits* egg-shaped, acute, concave, permanent.

Bloss. *Petals* 5, inversely heart-shaped, or egg-shaped, expanding, large.

Stam. *Filaments* 10, awl-shaped, united at the base, so as to form a sort of cup, expanding towards the top, alternately longer and shorter, shorter than the blossom. *Anthers* oblong, turning about like a vane.

Pist. *Germen* with 5 angles, beaked. *Style* awl-shaped, longer than the stamens, permanent. *Summits* 5, reflected.

S. Vess. *Capsule* 5-seeded, beaked, cells opening inwardly, each terminated by an awn-like tail, very long, and rolling up spirally.

Seeds solitary, rarely in pairs, egg-oblong.

Obs. In some species the blossom is irregular; in others it is regular, and the union of the filaments is not very evident. In the G. *cicutarium*, *pimpinellifolium*, *moschatum*, and *maritimum*, the flowers grow in umbels; the cup consists of 5 leaves; the blossom is not quite regular; glands are placed betwixt the petals; the filaments are 10, but only every other filament is furnished with an anther; the awn of the seed is hairy. In the other (British) species, the flowers are solitary, or in pairs; the cup has 5 leaves; the petals are regular, with glands placed betwixt them; the stamens are 10, distinct, all bearing anthers; the awn of the seed is smooth. Linn. In the Geranium *pusillum* 5 of the filaments are without anthers, and the awns of the seeds are covered with fine hairs.

POLYANDRIA.

ALTHÆ'A. *Tourn.* 23 *&* 24, *Malva. Gærtn.* 136.

Cal. *Cup* double.

Outer cup of 1 leaf, small and permanent, with 6 to 9 clefts. *Segments* very narrow.

Inner cup 1 leaf, with 5 shallow clefts. *Segments* broader, more acute, permanent.

Bloss. *Petals* 5, united at the base to the tube formed by the union of the filaments, inversely heart-shaped, bitten, flat.

Stam. *Filaments* numerous, united at the bottom into a cylinder, separate at the top, and on the surface of the tube. *Anthers* nearly kidney-shaped.

Pist. *Germen* round and flat. *Style* cylindrical, short. *Summits* numerous, (about 20,) bristle-shaped, as long as the styles.

S. Vess. *Capsule* round and flat, composed of many cells, (as many as there were styles,) 2-valved, disposed in a whirl round the pillar-like *receptacle*; when quite ripe, separating.

Seeds solitary, kidney-shaped, but compressed.

MAL'VA. *Gærtn.* 136.

Cal. *Cup* double.

Outer cup 3 leaves, narrower; *leafits* heart-shaped, acute, permanent. *Inner cup* 1 leaf, with 5 shallow clefts, larger, broader, permanent.

Bloss. *Petals* 5, inversely heart-shaped, bitten, flat, united at the base to the tube of the stamen,

Stam. *Filaments* numerous, united at the bottom into a cylinder, separate at the top, and on the surface of the tube. *Anthers* kidney-shaped.

Pist. *Germen* round and flat. *Style* cylindrical, short. *Summits* many, bristle-shaped, as long as the style.

S. Vess. *Capsule* roundish, composed of several cells (as many as styles,) 2-valved, disposed in a whirl round the pillar-like *receptacle*; at length falling off.

Seeds solitary, (sometimes, though rarely 2 or 3,) kidney-shaped.

Obs. All the species of this, as well as of the Genera Althæa and Lavatera, are mucilaginous and emollient. The *Farina* is a pretty microscopic object, appearing toothed like the wheel of a watch. Linn. It is globular and covered with prickles, which give it the toothed appearance.

LAVATE'RA. *Gærtn.* 136.

Cal. *Cup* double.

Outer cup 1 leaf, with 3 clefts, blunt, shorter, permanent.

Inner cup 1 leaf, with 5 shallow clefts. *Segments* more acute, upright, permanent.

Bloss. *Petals* 5, united at the base to the tube of the stamens, inversely heart-shaped, flat, expanding.

Stam. *Filaments* numerous, united at the bottom into a cylinder, separate at the top, and on the surface of the tube. *Anthers* kidney-shaped.

Pist. *Germen* round and flat. *Style* cylindrical, short. *Summits* many, (7 to 14,) bristle-shaped, as long as the style.

S. Vess. *Capsule* round and flat, composed of as many cells as there were summits, 2-valved, placed in a whirl round the pillar-like *receptacle*; at length falling off.

Seeds solitary, kidney-shaped.

TAX'US. *Tourn.* 362. *Gærtn.* 91.

Male flowers.

Cal. none, except the *Bud*, which resembles a cup with 4 leaves.

Bloss. none,

Stam. *Filaments* numerous, united below into a column longer than the bud. *Anthers* depressed, blunt at the edge, with 8 clefts, opening all round at the base; after shedding their pollen, flat, target-shaped, and the clefts in the edge become more remarkable.

Female flowers on another plant.

Cal. as above.

Bloss. none.

Pist. *Germen* egg-shaped, but tapering to a point. *Style* none. *Summit* blunt.

S. Vess. *Berry* an expansion of the receptacle, succulent and globular, open at the end, coloured. In course of time it grows dry, decays, and disappears.

Seeds single, egg-oblong, its top standing out of the open end of the berry.

Obs. This species of berry is very singular, and, strictly speaking, it ought not to be called a seed-vessel. Linn.

PI'NUS. *Tourn.* 356. *Gærtn.* 91.

Male flowers forming a bunch.

Cal. none, but the gaping scales of the bud.

Bloss. none.

Stam. *Filaments* many, united below into an upright pillar, divided at the top. *Anthers* upright, naked.

Female flowers on the same plant.

Cal. *Cone* somewhat egg-shaped, composed of *Scales*, with 2 flowers in each, oblong, tiled, permanent, inflexible.

Bloss. none.

Pist. *Germen* very small. *Style* awl-shaped. *Summit* simple.

S. Vess. none. The *Scales* of the cone, which before stood open, closing upon the seed.

Seed. *Nut* enlarged by a membranaceous wing, larger than the seed, but smaller than the scales of the cone, oblong, on one side straight, but rounded on the other.

CLASS XVII.

DIADELPHIA.

THIS Class comprehends the *butterfly-shaped* Flowers, and the *Leguminous* Plants of some Authors. Linnæus takes the CLASSIC character from the *disposition*, and the character of the Orders from the *number* of the stamens. From the title of this Class, the young Botanist will be led to imagine, that the filaments are always formed into *two* sets, but this is by no means the case; in many instances they are united into *one* set. The *butterfly-shape* of the blossom will, therefore, be a surer guide. If the student will get the flower of a garden pea, and compare it with the following NATURAL CHARACTER, there will no longer remain any difficulty in pronouncing, at first sight, whether a plant belong to this class or not.

NATURAL CHARACTER.

CAL. *Cup* 1 leaf, bell-shaped, shrivelling, bulging at the base, the lower part connected with the fruit-stalk, upper part blunt, containing honey. *Rim* with 5 teeth, acute, upright, oblique, unequal. The *lowermost tooth* longer; 2 *upper teeth* shorter, and standing further asunder. The bottom of the cup inclosing the receptacle, moistened with a liquor-like honey.

BLOSS. *butterfly-shaped*, unequal, each petal having a distinct name. Thus the

Standard, is the largest petal, lying upon, and covering the others. It is flat, horizontal, fixed by a claw to the upper edge of the receptacle; that part of it which stands out of the cup nearly circular and entire; a rising line, marking it lengthwise, particularly towards the end, as if it had been pressed down at the sides. That part of the petal next the base is somewhat like half a cylinder, and it incloses the parts which lie under it. The border is depressed on each side, but the sides next to the edge are turned upwards, where the half cylinder terminates. At the commencement of the border there are 2 concave impressions, prominent on the under side, and compressing the wings which lie beneath them. The

Wings are 2 equal petals; 1 placed on each side of the flower under the standard. The borders incumbent, parallel, rounded, and oblong, broadest outwards, the upper edge pretty straight, the lower extended and rounded. The base of each wing is cloven, the *lower segment* extending into a claw, fixed to the side of the receptacle, and about as long as the cup; the *upper segment* shorter, and bent inwards. The

Keel is the lowermost petal, generally deeply divided, placed under the standard, and between the wings. It is boat-shaped, concave, compressed at the sides, placed in the position of a boat upon the water. It is mutilated at the base, the lower part extending into a claw as long as the cup, and fixed to the receptacle. The upper and lateral segments shorter, and enfolded with those parts of the wings which resemble them in shape. The sides of the keel are shaped like the wings, and have a similar situation, only lower and more inward. The line that forms the keel, in this petal, is straight as far as the middle, and then gradually rises in an arch; but the marginal line runs straight to the extremity, until it meets with, and is lost in that of the keel.

STAM. *Filaments* united into 2 sets, differing in shape. The *lower filament* inclosing the pistil; the *upper filament* lying upon it.

Lower filament inclosing, sheathing the germen, membranaceous below the middle, and cylindrical, opening upwards and lengthwise, terminating in 9 awl-shaped filaments, bent like the keel, and equal to it in length, alternately 2 longer and 2 shorter.

Upper Filament awl or bristle-shaped; similar in situation to, and lying upon the opening of the cylindrical part of the lower filament, simple, and a little shorter than that: separated from the others at the base, so as to give a vent on each side for the honey.

Anthers 10, 1 upon the upper filament, 9 upon the lower, small, equal in size, terminating.

Pist. single, superior.

Germen oblong, nearly cylindrical, slightly compressed, straight, as long as the cylinder of the lower filament, which incloses it.

Style awl-shaped, or thread-shaped, ascending, agreeing in length and situation with the divisions of the lower filament, and placed in the middle of them, shrivelling.

Summit downy as far as it is turned upwards, placed directly under the anthers.

S. Vess. *Legumen* oblong, compressed, blunt, with 2 valves, and a seam running lengthwise both above and below; both seams straight, but the upper seam falling near the base, and the lower seam rising towards the end. It opens at the upper seam.

Seeds several, roundish, smooth, fleshy, pendant, marked with a prominence caused by the young plant near the insertion of the eye. When the young plant is excluded, the side lobes retain the figure of half the seed.

Receptacles *proper to the seeds*; small, very short, slender at the base, blunt and oblong at the part by which they are fixed. Inserted lengthwise in the upper seam *only* of the pod, but alternately, so that the valves being separated, the seeds adhere alternately to each valve.

Obs. This class is perfectly natural, and the structure of the flowers extremely singular: their situation is generally obliquely pendant.

The figure of the Legumen is not of so much consequence in ascertaining the genera as some have imagined; but the Cup. which has been hitherto thought unworthy of notice, is of the greatest use. The Leaves never should be considered in forming the characters of genera.

The Seeds of this class furnish food for men, and other animals: they are farinaceous and flatulent. The Leaves are food for cattle. None of them are poisonous.

Dr. Pulteney, in a note added to his translation of the Pan Suecicus, says, "A general view of this class shews at once how "very acceptacle its plants are to almost all cattle; cows and "sheep refused none, and horses not more than three, out of "the whole number with which they were tried. They afford "the richest food for cattle, and are cultivated in divers parts of "Europe, with all possible attention. With us, the Trifolium "*pratense* (or *Clover*) is mostly sown. Lately some trials have "been made with the Hedysarum *Onobrychis*, (*Saintfoin*) "and some have thought that it answers better than clover. I

“ say nothing of the exotic *Lucern*. Among these plants the ANTHYLLIS *vulneraria* is particularly acceptable to sheep; insomuch, that the separate cultivation of it has been recommended, but it will not succeed well except on chalky grounds.” (See Dr. Pulteney's accurate and judicious work, entitled, “ A General View of the Life and Writings of Linnæus.)”

DIADELPHIA. (Filaments in 2 sets.)

HEXANDRIA. (6 Stamens.)

Fumaria.

OCTANDRIA. (8 Stamens.)

Polygala.

DECANDRIA. (10 Stamens.)

Spartium.
Genista.
Ulex.
Ononis.
Anthyllis.
Pisum.
Orobus.
Lathyrus.
Vicia.
Ervum.
Ornithopus.
Hippocrepis.
Hedysarum.
Astragalus.
Trifolium.
Lotus.
Medicago.

HEXANDRIA.

FUMA'RIA. *Tourn.* 237. *Gærtn.* 115.

Cal. *Cup* 2 leaves; *leafits* opposite, equal, lateral, upright, acute, small, deciduous.

Bloss. oblong, tubular, gaping, palate projecting and filling up the mouth.

Upper lip flat, blunt, notched at the end, reflected. (*The Standard.*)

The *Nectary* is the base of the upper lip projecting backwards, blunt.

Lower lip altogether similar to the upper lip, towards the base keeled. (*The Keel.*)

Nectary at the base keeled, but projecting less than in the other.

Mouth 4-cornered, blunt, cloven perpendicularly. (*The Wings.*)

Stam. *Filaments* 2, equal, broad, tapering, one inclosed within each lip. *Anthers* 3, at the end of each filament.

Pist. *Germen* oblong, compressed, tapering to a point. *Style* short. *Summit* round, compressed, upright.

S. Vess. *Pouch* with 1 cell.

Seeds roundish.

Obs. The *stamens* are almost the only invariable part in this genus. The Fumaria *officinalis* has a roundish pouch, generally containing a single seed, deciduous. Linn. In F. *claviculata* the seed-vessel is an oblong, taper-pointed pod.

OCTANDRIA.

POLYG'ALA. *Tourn.* 79. *Gærtn.* 62.

Cal. *Cup* 5 leaves, small; *leafits* egg-shaped, acute, permanent, 2 placed beneath, and 1 above the blossom, the 2 *middle* leafits nearly egg-shaped, flat, large, coloured, (the *Wings*) deciduous.

Bloss. nearly butterfly-shaped.

Standard generally cylindrical, tubular, short. *Rim* reflected, small, cloven.

Keel concave, compressed, bulging towards the end.

Appendages to the keel (generally) 2 pencil-shaped substances, with 3 divisions, fixed towards the end of the keel.

Stam. *Filaments* 8, united, inclosed in the keel. *Anthers* 8, simple.

Pist. *Germen* oblong. *Style* simple, upright. *Summit* terminating, rather thick, cloven.

S. Vess. *Capsule* inversely heart-shaped, compressed, acute at the edge; *cells* 2. *Valves* 2. *Partition* placed crosswise to the valves, opening at the edge on each side.

Seeds solitary, egg-shaped.

Obs. The appendages to the keel are different in different species, and in many they are not to be found. Linn.

DECANDRIA.

SPARTIUM. *Tourn.* 411. *Genista. Gærtn.* 153.

Cal. *Cup* 1 leaf, heart-shaped, but tubular, small, coloured, the upper margin very short, the lower towards the end set with 5 little teeth.

Bloss. butterfly-shaped. *Petals* 5.

Standard inversely heart-shaped, entirely reflected, very large.

Wings egg-shaped, oblong, shorter than the standard, connected in the filaments.

Keel, petals 2, spear-shaped, oblong, longer than the wings, connected at the keel-shaped margin by soft hairs, fixed to the filaments.

Stam. *Filaments* 10, connected, unequal, adhering to the germen, the uppermost very short, and from that growing gradually longer; the lower cloven into 9 parts. *Anthers* rather oblong.

Pist. *Germen* oblong, hairy. *Style* awl-shaped, rising upwards. *Summit* fixed to the upper side of the end of the style, hairy.

S. Vess. *Legumen* cylindrical, long, blunt, with 1 cell and 2 valves.

Seeds many, globular, but somewhat kidney-shaped.

GENISTA. *Tourn.* 412, *Spartium. Gærtn.* 151.

Cal. *Cup* 1 leaf, small, tubular, 2-lipped. *Upper lip* with 2 teeth, more deeply divided than the *lower lip*, which has 3 teeth nearly equal.

Bloss. butterfly-shaped.

Standard oblong, distant from the keel, entirely bent back.

Wings oblong, flexible, shorter than the other petals.

Keel straight, notched at the end, longer than the standard.

Satm. *Filaments* 10, connected, rising out of the keel. *Anthers* simple.

Pist. *Germen* oblong. *Style* simple, rising upwards. *Summit* acute, rolled inwards.

S. Vess. *Legumen* roundish, turgid, with 1 cell and 2 valves.

Seeds solitary, generally kidney-shaped.

Obs. In G. *pilosa* there are 2 or more seeds; in G. *anglica* from 3 to 14, and many in G. *tinctoria*.

U'LEX. *Tourn.* 412. *Gærtn.* 51.

Cal. *Cup* 2-leaved, permanent; *leafits* egg-oblong, concave, straight, equal, a little shorter than the keel, the upper with 2 teeth, the lower with 3.

Bloss. butterfly-shaped, of 5 petals.

Standard inversely heart-shaped, notched at the end, upright, very large.

Wings oblong, blunt, shorter than the standard.

Keel of 2 petals, straight, blunt, approaching at the lower edge.

Stam. *Filaments* 10, united, (1 simple, and 1 with 9 clefts.) *Anthers* simple.

Pist. *Germen* oblong, cylindrical, hairy. *Style* thread-shaped, rising upwards. *Summit* blunt, very small.

S. Vess. *Legumen* oblong, turgid, little longer than the cup, straight, with 1 cell and 2 valves.

Seeds few, roundish, notched.

ONO'NIS. *Tourn.* 229, *Anonis.* *Gærtn.* 154.

Cal. *Cup* with 5 divisions, nearly as long as the blossom. *Segments* strap-shaped, tapering to a point, a little bowed upwards, the lowest under the keel.

Bloss. butterfly-shaped.

Standard heart-shaped, scored, the sides depressed more than in the rest.

Wings egg-shaped, half as long as the standard.

Keel tapering to a point, generally longer than the wings.

Stam. *Filaments* 10, united and forming a complete undivided cylinder. *Anthers* simple.

Pist. *Germen* oblong, woolly. *Style* simple, rising upwards. *Summit* blunt.

S. Vess. *Legumen* diamond-shaped, turgid, a little woolly, with 1 cell and 2 valves, sitting.

Seeds few, kidney-shaped.

ANTHYL'LIS. *Tourn.* 211, *Vulneraria. Gærtn.* 145.

Cal. *Cup* 1 leaf, egg-oblong, bellying, woolly; *rim* with 5 unequal teeth, permanent.

Bloss. butterfly-shaped.

Standard longer, with reflected sides, and a claw as long as the cup.

Wings 2, oblong, shorter than the standard.

Keel compressed, as long as the wings, and like them.

Stam. *Filaments* 10, connected, rising upwards. *Anthers* simple.

Pist. *Germen* oblong. *Style* simple, ascending. *Summit* blunt.

S. Vess. *Legumen* roundish, inclosed in the cup, very small, with 2 valves.

Seeds 1 or 2.

Obs. The singular structure of the filaments in the Anthyllis *vulneraria* merits attention. The top of each filament is distended like a hollow bladder, in form of an inverted pyramid, and the anther is fixed in the centre of the base of the pyramid. This hollow vesicle probably answers the purpose of a nectary.

PI'SUM. *Tourn.* 215. *Gærtn.* 152.

Cal. *Cup* 1 leaf, with 5 clefts, acute, permanent, the 2 *upper Segments* the shortest.

Bloss. butterfly-shaped.

Standard very broad, inversely-heart-shaped, reflected, notched at the end, with a point between.

Wings 2, circular, approaching, shorter than the standard.

Keel compressed, half-moon-shaped, shorter than the wings.

Stam. *Filaments* 10, 1 simple, superior, awl-shaped, but flat; 9 awl-shaped, united from the middle downwards into a cylinder, which is cloven towards the top. *Anthers* roundish.

Pist. *Germen* oblong, compressed. *Style* ascending, triangular, membranaceous, keeled, the sides bent outwards. *Summit* fixed to the superior angle, oblong, woolly.

S. Vess. *Legumen* large, long, somewhat cylindrical, or compressed underneath; the point tapering upwards, 1 cell, 2 valves.

Seeds many, globular.

OR'OBUS. *Tourn.* 214. *Gærtn.* 151.

Cal. *Cup* 1 leaf, tubular, blunt at the base; *rim* oblique, very short, with 5 teeth, the 3 lower the sharpest, the 2 upper shorter, deeper, and more bluntly divided, shrivelling.

Bloss. butterfly-shaped.

Standard inversely heart-shaped, longer, reflected at the end and at the sides.

Wings 2, oblong, nearly as long as the standard, rising upwards, approaching.

Keel evidently cloven in the lower part, tapering to a point, rising upwards, edges approaching, parallel, compressed, the bottom bellying.

Stam. *Filaments* 10, ascending, 9 united. *Anthers* roundish.

Pist. *Germen* cylindrical, compressed. *Style* thread-shaped, bent upwards, upright. *Summit* strap-shaped, on the inner side downy from the middle to the end of the style.

S. Vess. *Legumen* cylindrical, long, tapering to a point, ascending at the end, 1 cell, 2 valves.

Seeds many, roundish.

LATH'YRUS. *Tourn.* 216, 217, & 223, *Aphaca.* *Gærtn.* 152.

Cal. *Cup* 1 leaf, bell-shaped, with 5 shallow clefts. *Segments* spear-shaped, acute, the 2 upper shortest, the lower one longer.

Bloss. butterfly-shaped.

Standard inversely heart-shaped, very large, reflected at the end and at the sides.

Wings oblong, crescent-shaped, short, blunt.

Keel half a circle, as large as the wings, but broader, opening inwardly at the middle.

Stam. *Filaments* 10, rising upwards, 9 united. *Anthers* roundish.

Pist. *Germen* compressed, oblong, strap-shaped. *Style* upright, flat, broader towards the top, acute at the end. *Summit* extending from the middle of the style to the end, woolly along the fore part.

S. Vess. *Legumen* very long, cylindrical, or compressed, tapering to a point. *Valves* 2. *Cell* 1.

Seeds many, either cylindrical, or globular, but somewhat angular.

Obs. This Genus is nearly allied to Pisum, but its style is evidently different.

VI'CIA. *Tourn.* 212. *Gærtn.* 151.

Cal. *Cup* 1 leaf, tubular, upright, with 5 shallow clefts, acute, the upper teeth shortest, approaching, all the teeth equal in breadth.

Bloss. butterfly-shaped.

Standard oval, with a broad oblong claw, notched at the end, with a sharp point in the middle, reflected at the sides, compressed and raised in a line running lengthwise.

Wings 2, oblong, upright, in the shape of half a heart, with an oblong claw, shorter than the standard.

Keel with an oblong cloven claw, the bellying part compressed, in the shape of half a circle, shorter than the wings.

Stam. *Filaments* 10, 9 united. *Anthers* upright, roundish, with 4 furrows.

Nectary gland short, tapering to a point, arising from the receptacle, and situated between the united filaments and the germen.

Pist. *Germen* strap-shaped, compressed, long. *Style* thread-shaped, shorter, bent upwards, at a right angle. *Summit* blunt, bearded across the under side below the end.

S. Vess. *Legumen* long, like leather, with 2 valves and 1 cell, terminated by a point.

Seeds many, roundish.

ER'VUM. *Tourn.* 221. *Gærtn.* 151.

Cal. *Cup* with 5 divisions, as long as the blossom. *Segments* tapering to a point, nearly equal.

Bloss. butterfly-shaped.

Standard flat, a little reflected, circular, large.

Wings blunt, half as long as the standard.

Keel shorter than the wings, tapering to a point.

Stam. *Filaments* 10, rising upwards, 9 united. *Anthers* simple.

Pist. *Germen* oblong. *Style* simple, rising upwards. *Summit* blunt, without a beard.

S. Vess. *Legumen* oblong, blunt, cylindrical, with protuberances formed by the seeds.

Seeds 4, nearly round.

Obs. It differs from *Vicia* solely in the summit. Linn. In E. *tetraspermum* the cup has 5 unequal teeth; and the summit, when viewed through a microscope, appears bearded, so that it should be arranged with the *Viciæ*. In E. *hirsutum* there are only 2 seeds.

ORNI'THOPUS. *Tourn.* 224, *Ornithopodium. Gærtn.* 155.

Cal. *Umbel* simple.

Cup 1 leaf, tubular; *rim* with 5 teeth, nearly equal, permanent.

Bloss. butterfly-shaped.

Standard inversely heart-shaped, entire.

Wings egg-shaped, straight, hardly so large as the standard.

Keel compressed, very small.

Stam. *Filaments* 10, 9 united. *Anthers* simple.

Pist. *Germen* strap-shaped. *Style* bristle-shaped, ascending. *Summit* a dot at the end of the style.

S. Vess. *Legumen* awl-shaped, cylindrical, bowed, jointed, separated by transverse partitions, separating at the joints.

Seeds solitary, roundish.

HIPPOCRE'PIS. *Tourn.* 225, *Ferrum equinum.*

Cal. *Umbel* simple.

Cup 1 leaf, with 5 teeth, the 2 upper conjoined and less deeply divided, permanent.

Bloss. butterfly-shaped.

Standard heart-shaped, with a claw as long as the cup.

Wings egg-oblong, blunt.

Keel crescent-shaped, compressed.

Stam. *Filaments* 10, 9 united, ascending. *Anthers* simple.

Pist. *Germen* slender, oblong, ending in an awl-shaped *style*, ascending. *Summit* undivided.

S. Vess. *Legumen* compressed, membranaceous, very long, crooked, deeply indented along one seam into roundish hollows, so that it appears as if composed of many 3-edged blunt joints, connected together by the upper seam.

Seeds oblong, crooked, 1 in each joint.

Obs. The Ess. character consists in the Legumen being shaped like a horse-shoe. Linn.

HEDYS'ARUM. *Tourn.* 225 & 211, *Onobrychis. Gærtn.* 155.

Cal. *Cup* 1 leaf, with 5 shallow clefts. *Segments* awl-shaped, upright, permanent.

Bloss. butterfly-shaped, scored.

Standard reflected and compressed, egg-oblong, notched at the end, long.

Wings oblong, narrower than the other petals, straight.

Keel straight, compressed, broader at the outer part, and transversely blunt, cloven from the base to the bulging part.

Stam. *Filaments* 10, 9 united, bent at a right angle. *Anthers* roundish, compressed.

Pist. *Germen* slender, compressed, strap-shaped. *Style* awl-shaped, bent like the stamens. *Summit* undivided.

S. Vess. *Legumen* with roundish joints, compressed, with 2 valves and 1 seed in each joint.

Seeds kidney-shaped, solitary.

Obs. The Hedysarum *onobrychis* has a *legumen* of only 1 joint, and a single seed. Linn.

ASTRAG'ALUS. *Tourn.* 233. *Gærtn.* 154.

Cal. *Cup* 1 leaf, tubular, with 5 acute teeth, the lower teeth gradually smaller.

Bloss. butterfly-shaped.

Standard longer than the other petals, reflected at the sides, notched at the end, blunt, straight.

Wings oblong, shorter than the standard.
Keel as long as the wings, notched at the end.

STAM. *Filaments* 10, almost straight, 9 united. *Anthers* roundish.

PIST. *Germen* nearly cylindrical. *Style* awl-shaped, ascending. *Summit* blunt.

S. VESS. *Legumen* with 2 cells, the cells bending to one side.

SEEDS kidney-shaped.

OBS. The Legumen differs in different species.

TRIFO'LIUM. *Tourn.* 228 & 229, *Melilotus.* *Gærtn.* 153.

CAL. An *Umbellule* or little *head*, upon a common receptacle.
Cup 1 leaf, tubular, with 5 teeth, permanent.

BLOSS. butterfly-shaped, generally permanent, shrivelling.
Standard reflected.
Wings shorter than the standard.
Keel shorter than the wings.

STAM. *Filaments* 10, 9 united. *Anthers* simple.

PIST. *Germen* somewhat egg-shaped. *Style* awl-shaped, ascending. *Summit* simple.

S. VESS. *Legumen* scarcely longer than the cup, with 1 valve, not opening, deciduous.

SEEDS very few, roundish.

OBS. It is, perhaps, more difficult to give a true and essential character to this genus, than to any other that I know, notwithstanding the general habit, which is at once perceived, and the properties of the plants which compose it shew that it is a natural one; and those who have attempted to divide it, have not been able to fix any certain limits to their sub-divisions. LINN.

LO'TUS. *Tourn.* 227. *Gærtn.* 153.

CAL. *Umbel* simple.
Cup 1 leaf, tubular, with 5 shallow clefts: *teeth* acute, equal, upright, permanent.

BLOSS. butterfly-shaped.
Standard circular, bent downwards, claw oblong, concave.
Wings circular, shorter than the standard, broad, approaching upward.

Keel bulging in the lower part, closed above, tapering to a point, ascending, short.

STAM. *Filaments* 10, ascending, 9 united, broadish at the ends. *Anthers* small, simple.

PIST. *Germen* cylindrical, oblong. *Style* simple, ascending. *Summit* a dot, bending inwards.

S. VESS. *Legumen* cylindrical, stiff and straight, filled full, longer than the cup, valves 2, cells many.

SEEDS many, cylindrical.

MEDICA'GO. *Tourn.* 231. *Gærtn.* 155.

CAL. *Cup* 1 leaf, straight, bell-shaped-cylindrical, with 5 shallow clefts, tapering to a point, equal.

BLOSS. butterfly-shaped.

Standard egg-shaped, entire, bent inwards at the edge, entirely bent back.

Wings egg-oblong, fixed to the appendage of the keel, approaching at the sides under the keel.

Keel oblong, cloven, expanding, blunt, bent downwards by the pistil, and with the standard forming a gaping mouth.

STAM. *Filaments* 10, united almost the whole length. *Anthers* small.

PIST. *Germen* standing on a little fruit-stalk, oblong, bowed inwards, compressed, inclosed by the filaments, bursting out of the keel, and pressing back the standard, ending in a *style* which is short, awl-shaped, generally straight. *Summit* terminating, very small.

S. VESS. *Legumen* compressed, long, bent inwards.

SEEDS many, kidney-shaped, or angular.

OBS. The Legumen in some species is bent like a sickle; in others it is spiral like a snail-shell. LINN.

CLASS XVIII.

POLYADELPHIA.

THIS Class comprehends the plants whose flowers have stamens united by the filaments into 3 or more sets. The Orders depend upon the number of stamens. We have only a single genus belonging to this Class, in some species of which the filaments are so far separated, that unless they are examined quite down to the bottom, the young Botanist would be apt to search for them in the classes Icosandria or Polyandria.

POLYANDRIA.

HYPE'RICUM. *Tourn.* 131 & 128. *Androsæmum.* *Gærtn.* 62.

Cal. *Cup* with 5 divisions. *Segments* somewhat egg-shaped, concave, permanent.

Bloss. *Petals* 5, oblong-egg-shaped, blunt, expanding, bending from left to right.

Stam. *Filaments* numerous, hair-like, connected at the base into 3 or 5 sets. *Anthers* small.

Pist. *Germen* roundish. *Styles* 3, (sometimes 1, 2, or 5,) simple, distant, as long as the stamens. *Summits* simple.

S. Vess. *Capsule* roundish, with as many cells as there are styles.

Seeds several, oblong.

CLASS XIX.

SYNGENESIA.

THIS Class comprehends those flowers which Botanists have very generally agreed to call *compound*. The essential character of a COMPOUND FLOWER consists in the ANTHERS being united so as to form a cylinder, and a *single* SEED being placed upon the receptacle, under each floret. The DANDELION and the THISTLE are compound flowers; that is, each of these *flowers* are composed or compounded of a number of small flowers, called FLORETS.

Character of the FLOWER.

A COMPOUND FLOWER is composed of many *Florets*, sitting upon a COMMON RECEPTACLE, and inclosed by 1 COMMON CALYX, The

Surface of the RECEPTACLE is either concave, flat, convex, pyramidical, or globular. It is either

Naked, that is, marked only with little dots, as in DANDELION; or

Hairy, covered with soft upright hairs as in THISTLE; or

Chaffy, beset with awl-shaped, narrow, compressed, upright, chaffy substances, separating the florets, as in CHAMOMILE or YARROW.

The COMMON CALYX is a *Cup* which surrounds the florets and the common receptacle. *(When the florets have blossomed it contracts; but when the seeds are ripe it expands, and falls back.)* It is either

Simple, when formed with only a single row of scales or Leaves, as in GOATS-BEARD;

Tiled, when the scales are numerous, the outer ones gradually growing shorter, and lying upon the inner ones, like the tiles upon a house, as in ARTICHOKE;

Leafy, when a single row of equal and longer segments stands next to the florets, and another row of very small scales surrounds the base only of those segments, as in DAISEY.

The structure of the FLORETS which compose a compound flower, will be best understood by pulling to pieces the flower of a Thistle, of Dandelion, or of the Sunflower, and comparing the florets with the following

Natural Character of a FLORET.

CAL. none, but the crown of the seed sitting upon the top of the germen.

BLOSS. 1 petal. *Tube* very slender and long, sitting upon the germen. (*It is either*)

1. TUBULAR. *Border* bell-shaped, with 5 clefts. *Segments* reflected and expanding, as in THISTLE or BURDOCK.
2. NARROW. *Border* strap-shaped, flat, turned outwards, lopped at the end, which is either entire, or marked with 3 or 5 teeth, as in DANDELION or ENDIVE.
3. NONE. *Border* wanting, and sometimes the petal is altogether deficient.

STAM. *Filaments* 5, hair-like, very short, fixed to the neck of the little blossom. *Anthers* 5, upright, strap-shaped, united at the sides so as to form a hollow cylinder, as long as the border of the blossom, and marked at the top with 5 teeth.

PIST. *Germen* oblong, standing under the little blossom upon the common receptacle. *Style* thread-shaped, upright, as long as the stamens, passing through the hollow cylinder formed by the anthers. *Summit* divided, the segments rolled back and expanding.

S. VESS. properly speaking, none; though, in Osteosperma and Strumpfia, *(foreign genera)* there is a sort of leathery crust over the seed.

SEED single, oblong, frequently with 4 edges, generally narrower towards the base.

Crowned with DOWN, which either consists of many *undivided* hair-like spokes, placed in a circle, or of spokes that are branched or radiated. This *down*, again, is either supported upon a little *pillar*, or else *sitting* immediately upon the seed. DANDELION. THISTLE.

——— with a small CUP, which has generally 5 teeth, and is permanent.

——— neither with a *Cup*, nor with down. TANSEY.

OBS. In examining the minuter florets, the Dissecting Instruments and the Botanic Microscope, will be found extremely useful.

The disposition of the stamens and pistils varying, occasions the following

Distinctions of FLORETS.

FLORET. Tubular, *Hermaphrodite*, containing both stamens and pistils.
——— ——— *Male*, containing stamens but no pistils.
——— ——— *Female*, containing a pistil but no stamens.
——— ——— *Neutral*, containing neither stamens nor pistil.
——— Strap-shaped, *Hermaphrodite*, as above.
————————— *Male*, as above.
————————— *Female*, as above.
————————— *Neutral*, as above.

From considering these different structures of the florets, it is evident, that these compound flowers may be composed either

Of

1. Florets *tubular* in the centre, with stamens and pistils. *Tubular* in the circumference, with stamens and pistils.
2. Florets *tubular* in the centre, with stamens and pistils. *Tubular* in the circumference, with only pistils.
3. Florets *tubular* in the centre, with stamens and pistils. *Tubular* in the circumference, with neither stamens nor pistils.
4. Florets *tubular* in the centre, with stamens and pistils. *Narrow* in the circumference, with stamens and pistils.
5. Florets *tubular* in the centre, with stamens and pistils. *Narrow* in the circumference, with only pistils.
6. Florets *tubular* in the centre, with stamens and pistils. *Narrow* in the circumference, with neither stamens nor pistils.
7. Florets *tubular* in the centre, with stamens and pistils. *Pistils* in the circumference without blossoms.
8. Florets *tubular* in the centre, with stamens and imperfect pistils. *Pistils* in the circumference without blossoms.
9. Florets *narrow* in the centre, with stamens and pistils. *Narrow* in the circumference, with stamens and pistils.

The **Orders**, therefore, according to the system we have adopted, will be as follows:

I. **Polygamia æqualis**; (florets all hermaphrodite.) That is, when all the florets are furnished with stamens and pistils. (9. 1. 4. of the preceding table.)

II. **Polygamia superflua.** (Florets of the circumference female.) That is, when the florets in the centre have both stamens and pistils; but the florets in the circumference only pistils. (2. 5. 7. of the preceding table.)

III. **Polygamia frustranea.** (Florets of the circumference neutral.) That is, when the florets in the centre have both stamens and pistils; but the florets in the circumference neither. (3. 6. of the preceding table.)

IV. **Polygamia necessaria.** (Necessary female florets.) That is, when the florets in the centre have both stamens and pistils; but, from some defect in the pistils, produce no seed. The florets in the circumference have pistils only, and produce perfect seeds. (8. of the preceding table.)

V. **Polygamia Segregata.** (Separated florets.) That is, when several florets, each having its own proper cup, are inclosed within one common calyx, so as to form altogether but one flower.

(The British Flora does not furnish any example of this order.)

The plants of this class are supposed to have various specific virtues. Most of them are bitter; none of them poisonous, except, perhaps, the **Lactuca** *virosa*, when growing in shady situations.

The elasticity of the calyx in the **Picris**, **Carduus**, and many other genera, is too remarkable to pass unnoticed by the slightest observer. It seems as if the expansion of the florets first burst the calyx open, and when these wither it closes again. The downy hairs that crown the seeds, before upright, now begin to expand, and, by this expansion, again open the leaves of the calyx, and bend them quite back. The seeds now escape, and the calyx, becoming dry and withered, no longer retains its elastic power.

The hairy, or downy appendages of the seeds, occasion them to be wafted about in the air, and disseminated far and wide. The structure of this down deserves our notice: there is hardly a child that is insensible to its beauty in the **Leontodon** or *Dandelion*.

SYNGENESIA. (United Anthers.)

Polygamia æqualis. (Florets all Hermaphrodite.)

Tragopogon.
Picris.
Sonchus.
Lactuca.
Prenanthes.
Leontodon.
Hieracium.
Crepis.
Hyoseris.
Hypochæris.
Lapsana.
Cichorium.
Arctium.
Serratula.
Carduus.
Onopordon.
Carlina.
Bidens.
Eupatorium.
Santolina.

Polygamia superflua. (Florets of the Circumference Female.)

Tanacetum.
Artemisia.
Gnaphalium.
Conyza.
Erigeron.
Tussilago.
Senecio.
Aster.
Solidago.
Cineraria.
Inula.
Doronicum.
Bellis.
Chrysanthemum.
Matricaria.
Anthemis.
Achillea.

Polygamia frustranea. (Florets of the Circumference Neutral.)

Centaurea.

Polygamia necessaria. (Necessary Female Florets.)

Calendula.
Filago.

POLYGAMIA ÆQUALIS.

TRAGOPO'GON. *Tourn.* 270. *Gærtn.* 159.

CAL. *common*, simple, with 8 leaves; *leafits* spear-shaped, equal, every other standing more inwards, all united at the base.

BLOSS. *compound*, tiled, uniform. *Florets* hermaphrodite, numerous, the outer rather longer.

Individuals of 1 petal, strap-shaped, lopped, with 5 teeth.

STAM. *Filaments* 5, hair-like, very short. *Anthers* forming a cylinder.

PIST. *Germen* oblong. *Style* thread-shaped, as long as the stamens. *Summits* 2, rolled back.

S. VESS. none, the *calyx* closing, tapering to a point, as long as the seeds, a little bellying.

SEEDS solitary, oblong, tapering towards each end, angular, rough, terminated by a long awl-shaped pillar supporting the *down*, which is feathered and flat, with about 32 spokes.

RECEPT. naked, flat, rough.

OBS. In some species the seeds are straight, and the cup longer than the blossoms; in others, the seeds crooked, and the cup shorter than the blossoms.

PI'CRIS. *Gærtn.* 159.

CAL. *common*, double, the *outer* very large, with 5 leaves; *leafits* heart-shaped, flat, flexible, approaching; the *inner* tiled, egg-shaped.

BLOSS. *compound*, tiled, uniform. *Florets* hermaphrodite, numerous.

Individuals of 1 petal, narrow, strap-shaped, lopped, with 5 teeth.

STAM. *Filaments* 5, hair-like, very short. *Anthers* forming a hollow cylinder.

PIST. *Germen* nearly egg-shaped. *Style* as long as the stamens. *Summits* 2, reflected.

S. VESS. none. The *calyx* unchanged, at length reflected.

SEEDS solitary, bellying, blunt, furrowed transversely. *Down* feathered, standing on a pedicle.

RECEPT. naked.

SON'CHUS. *Tourn.* 268. *Gærtn.* 158.

Cal. *common*, tiled, bellying. *Scales* many, strap-shaped, unequal.

Bloss. *compound*, tiled, uniform. *Florets* hermaphrodite, numerous, equal.

Individuals of 1 petal, narrow, strap-shaped, lopped; with 5 teeth.

Stam. *Filaments* 5, hair-like; very short. *Anthers* forming a hollow cylinder.

Pist. *Germen* somewhat egg-shaped. *Style* thread-shaped, as long as the stamens. *Summits* 2, reflected.

S. Vess. none, the *calyx* closing forms a compressed globe, but tapering to a point.

Seeds solitary, rather long. *Down* hair-like, sitting.

Recept. naked.

LACTU'CA. *Tourn.* 267. *Gærtn.* 158.

Cal. *common* tiled, cylindrical, *scales* many, tapering to a point, membranaceous at the edge.

Bloss. *compound*, tiled, uniform. *Florets* hermaphrodite, many, equal.

Individuals of 1 petal, strap-shaped, lopped, with 4 or 5 teeth.

Stam. *Filaments* 5, hair-like, very short. *Anthers* forming a hollow cylinder.

Pist. *Germen* somewhat egg-shaped. *Style* thread-shaped, as long as the stamens. *Summits* 2, reflected.

S. Vess. none. *Calyx* closing, egg-shaped, cylindrical.

Seeds solitary, egg-shaped, tapering to a point, compressed, smooth. *Down* hair-like, on a long pedicle, tapering downwards.

Recept. naked.

Obs. The L. *scariola* and L. *virosa* have furrowed seeds.

PRENAN'THES. *Gærtn*, 158.

Cal. *common*, double, cylindrical, smooth, *scales* of the cylinder equal in number to the florets; *scales* of the base few, unequal, very short.

Bloss. *compound*, generally consisting of a single row of florets. *Florets* 5 to 8 or more, hermaphrodite, equal, standing in a circle.

Individuals of 1 petal, strap-shaped, lopped, with 4 teeth.

Stam. *Filaments* 5, hair-like, very short. *Anthers* forming a hollow cylinder.

Pist. *Germen* nearly egg-shaped. *Style* thread-shaped, longer than the stamens. *Summit* cloven, reflected.

S. Vess. none. *Calyx* cylindrical, closing a little at the rim.

Seeds solitary, heart-shaped. *Down* hair-like, sitting.

Recept. naked.

Obs. In some species the down is supported on a pedicle. Linn.

LEONTODON. *Tourn.* 266.

Cal. *common*, tiled, oblong; *inner scales* strap-shaped, parallel, equal; *outer scales* fewer, and generally reflected down to the base.

Bloss. *compound*, tiled, uniform. *Florets* hermaphrodite, numerous, equal.

Individuals of 1 petal, strap-shaped, narrow, lopped, with 5 teeth.

Stam. *Filaments* 5, hair-like, very short. *Anthers* forming a hollow cylinder.

Pist. *Germen* nearly egg-shaped. *Style* thread-shaped, as long as the florets. *Summits* 2, rolled back.

S. Vess. none. *Calyx* oblong, straight, at length reflected.

Seeds solitary, oblong, rough. *Down* hair-like, supported on a pedicle.

Recept. naked, dotted.

Obs. In Leontodon *Taraxacum* the down is supported on a long pedicle, in all the other English species it is sitting, except in the L. *autumnale*, where, as has been observed by Leers, in the seeds of the circumference it is sitting, but in those of the centre it sometimes stands on a short pedicle.

HIERA'CIUM. *Tourn.* 267. *Gærtn.* 158.

Cal. *common*, tiled, egg-shaped; *scales* many, strap-shaped, very unequal, lying lengthwise one over another.

Bloss. *compound*, tiled, uniform. *Florets* hermaphrodite, numerous, equal.

Individuals of 1 petal, narrow, strap-shaped, lopped, with 5 teeth.

Stam. *Filaments* 5, hair-like, very short. *Anthers* forming a hollow cylinder.

Pist. *Germen* nearly egg-shaped. *Style* thread-shaped, as long as the stamens. *Summits* 2, bent back.

S. Vess. none. *Calyx* closing, egg-shaped.

Seeds solitary, with 4 blunt edges, short. *Down* hair-like, sitting.

Recept. naked.

CRE'PIS. *Gærtn.* 158.

Cal. *common*, double.

Outer very short, open, deciduous.

Inner egg-shaped, simple, furrowed, permanent. *Scales* strap-shaped, approaching.

Bloss. *compound*, tiled, uniform. *Florets* hermaphrodite, many, equal.

Individuals of 1 petal, narrow, strap-shaped, lopped, with 5 teeth.

Stam. *Filaments* 5, hair-like, very short. *Anthers* forming a hollow cylinder.

Pist. *Germen* nearly egg-shaped. *Style* thread-shaped, as long as the stamens. *Summits* 2, reflected.

S. Vess. none. *Calyx* roundish.

Seeds solitary, oblong. *Down* hair-like, standing on a pedicle.

Recept. naked.

Obs. In C. *tectorum* and C. *biennis* the down is sitting. (St.)

HYO'SERIS. *Gærtn.* 160.

Cal. *common*, cylindrical, angular, of about 8 leaves, permanent. *Scales* spear-shaped, upright, equal, acute, the *base* closely surrounded with a little calyx, composed of a few very short scales.

Bloss. *compound*, somewhat tiled, uniform. *Florets* hermaphrodite, many.

Individuals of 1 petal, narrow, strap-shaped, lopped, with 5 teeth.

Stam. *Filaments* 5, hair-like, very short. *Anthers* forming a hollow cylinder.

Pist. *Germen* oblong. *Style* thread-shaped, as long as the stamens. *Summits* 2, reflected.

S. Vess. none; *common calyx* straight, or expanding.

Seeds solitary, oblong, membranaceous, scored on the middle of one side, about as long as the calyx, those of the circumference covered by the scales of the calyx, broader or narrower than the others, 3-sided, crooked. *Down* sitting, hair-like, surrounded by awned chaff, which in the seeds of the circumference is very short.

Recept. naked.

HYPOCHÆ'RIS. *Gærtn.* 160.

Cal. *common*, roundish, tiled, bellying at the base. *Scales* spear-shaped, acute.

Bloss. *compound*, tiled, uniform. *Florets* hermaphrodite, equal, numerous.

Individuals of 1 petal, narrow, strap-shaped, lopped, with 5 teeth.

Stam. *Filaments* 5, hair-like, very short. *Anthers* forming a hollow cylinder.

Pist. *Germen* egg-shaped. *Style* thread-shaped, as long as the stamens. *Summits* 2, reflected.

S. Vess. none, the *calyx* becoming globular, but tapering, closes on the seeds.

Seeds solitary, oblong. *Down* feathered, standing on a pedicle.

Recept. chaffy. *Chaff* spear-strap-shaped, as long as the seeds.

Obs. In H. *glabra* the central seeds have the down on a pedicle, but not so those of the circumference. (Haller.)

LAP'SANA. *Tourn.* 272. *Gærtn.* 157.

Cal. *common*, double, egg-shaped, angular. *Scales of the tube* 8, equal, strap-shaped, with a hollow channel, keeled, acute. *Scales of the base* 6, tiled, small, every other smaller.

Bloss. *compound*, tiled, uniform. *Florets* hermaphrodite, about 16, equal.

Individuals of 1 petal, strap-shaped, lopped, with 5 teeth.

Stam. *Filaments* 5, hair-like, very short. *Anthers* forming a hollow cylinder.

Pist. *Germen* rather oblong. *Style* thread-shaped, as long as the stamens. *Summit* cloven, reflected.

S. Vess. none. *Calyx* egg-shaped, closing.

Seeds solitary, oblong, cylindrical, but with 3 edges, scored. *Down* none.

Recept. naked, flat.

CICHO'RIUM. *Tourn.* 272. *Gærtn.* 157.

CAL. *common*, double, cylindrical. *Scales* 8, narrow, spear-shaped, equal, forming a cylinder, 5 of them shorter than, and lying upon the others.

BLOSS. *compound*, flat, uniform. *Florets* hermaphrodite, 20, placed in a circle.

Individuals of 1 petal, strap-shaped, lopped, deeply divided into 5 teeth.

STAM. *Filaments* 5, hair-like, very short. *Anthers* forming a hollow cylinder, with 5 edges.

PIST. *Germen* oblong. *Style* thread-shaped, as long as the stamens. *Summits* 2, rolled back.

S. VESS. none. *Calyx* cylindrical, closing at the top.

SEEDS solitary, compressed, with about 5 acute angles. *Down* like chaff, the chaffy substances very small, numerous.

RECEPT. somewhat chaffy.

ARC'TIUM. *Tourn.* 256, *Lappa. Gærtn.* 162.

CAL. *common*, globular, tiled. *Scales* spear-shaped, ending in awl-shaped prickles, long, and hooked at the points.

BLOSS. *compound*, tubular, uniform. *Florets* hermaphrodite, equal.

Individuals of 1 petal, tubular. *Tube* slender, very long. *Border* egg-shaped, with 5 clefts. *Segments* strap-shaped, equal.

STAM. *Filaments* 5, hair-like, very short. *Anthers* forming a hollow cylinder, as long as the blossom, with 5 teeth.

PIST. *Germen* oblong, with soft hairs at the end. *Style* thread-shaped, longer than the stamens. *Summits* cloven, reflected.

S. VESS. none. *Calyx* closing.

SEEDS solitary, like an inverted pyramid, the 2 opposite angles indistinct, bulging on the outer side. *Down* simple, shorter than the seed.

RECEPT. chaffy, flat. *Chaff* like bristles.

SERRA'TULA. *Gærtn.* 162.

CAL. *common*, oblong, rather cylindrical, tiled. *Scales* spear-shaped, acute, or blunt, without awns.

BLOSS. *compound*, tubular, uniform. *Florets* hermaphrodite, equal.

Individuals of 1 petal, funnel-shaped. *Tube* bent inwards. *Border* bellying, with 5 clefts.

STAM. *Filaments* 5, hair-like, very short. *Anthers* forming a hollow cylinder.

PIST. *Germen* egg-shaped. *Style* thread-shaped, as long as the stamens. *Summits* 2, oblong, reflected.

S. VESS. none. *Calyx* unchanged.

SEEDS solitary, inversely egg-shaped. *Down* sitting, feathered.

RECEPT. chaffy, flat.

OBS. The *Down* in some species is feathered, in others but little so. CARDUUS is distinguished from SERRATULA by the receptacle being hairy; the calyx bellying, its scales thorny, and the summit not so deeply cloven. LINN.

CAR'DUUS. *Gærtn.* 162.

CAL. *common*, bellying, tiled. *Scales* numerous, spear-shaped, tapering to a point, thorny.

BLOSS. *compound*, tubular, uniform. *Florets* hermaphrodite, nearly equal, reflected.

Individuals of 1 petal, funnel-shaped. *Tube* very slender. *Border* upright, egg-shaped at the base, with 5 clefts. *Segments* strap-shaped, equal, 1 more deeply divided.

STAM. *Filaments* 5, hair-like, very short. *Anthers* forming a hollow cylinder as long as the floret, with 5 teeth at the rim.

PIST. *Germen* egg-shaped. *Style* thread-shaped, longer than the stamens. *Summits* simple, awl-shaped, naked, notched at the end.

S. VESS. none. *Calyx* closing a little.

SEEDS solitary, inversely egg-shaped, with 4 angles, hair-like, 2 opposite ones indistinct. *Down* sitting, very long.

RECEPT. hairy, flat.

OBS. Several species arranged by Linnæus under this genus have the *Down* feathered. (Schreb.)

ONOPOR'DON. *Tourn.* 253, *Carduus. Gærtn.* 161.

CAL. *common*, roundish, bellying, tiled. *Scales* numerous, thorny, projecting on every side.

BLOSS. *compound*, tubular, uniform. *Florets* hermaphrodite, equal.

Individuals of 1 petal, funnel-shaped. *Tube* very slender. *Border* upright, bellying, with 5 clefts. *Segments* equal, 1 more deeply divided.

STAM. *Filaments* 5, hair-like, very short. *Anthers* forming a hollow cylinder as long as the blossom, with 5 teeth.

PIST. *Germen* egg-shaped. *Style* thread-shaped, longer than the stamens. *Summit* crowned.

S. VESS. none. *Calyx* closing a little.

SEEDS solitary. *Down* hair-like, sitting.

RECEPT. chaffy. *Chaff* lopped, but sharp-pointed, shorter than the seeds, united so as to form cells.

CARLI'NA. *Tourn.* 285. *Gærtn.* 163.

CAL. *common*, bellying, radiate, tiled. *Scales* numerous, flexible, acute, the inner in a circle, very long, expanding, shining, coloured, forming rays to the compound flower.

BLOSS. *compound*, uniform, tubular. *Florets* hermaphrodite, equal.

Individuals of 1 petal, funnel-shaped. *Tube* slender. *Border* funnel-shaped, with 5 clefts.

STAM. *Filaments* 5, hair-like, very short. *Anthers* forming a hollow cylinder.

PIST. *Germen* short. *Style* thread-shaped, as long as the stamens. *Summit* oblong, cloven or entire.

S. VESS. none. *Calyx* unchanged.

SEEDS solitary, rather cylindrical. *Down* divided into rays, somewhat chaff-like, branched, feathered.

RECEPT. flat, chaff-bristle-like, membranaceous, and a little united at the base, forming cells, with many clefts, rays awl-shaped. *Bristles* somewhat longer than the chaff, and club-shaped, are intermixed with it.

BI'DENS. *Tourn.* 262. *Gærtn.* 167.

CAL. *common*, tiled, upright; *leafits* nearly equal, oblong, concave and channelled.

Bloss. *compound*, uniform, tubular. *Florets* hermaphrodite, tubular.

Individuals of 1 petal, funnel-shaped. *Border* with 5 clefts, upright.

Stam. *Filaments* 5, hair-like, very short. *Anthers* forming a hollow cylinder.

Pist. *Germen* oblong. *Style* simple, as long as the stamens. *Summits* 2, oblong, reflected.

S. Vess. none. *Calyx* unchanged.

Seeds solitary, blunt, angular. *Down* 2 or more awns, oblong, straight, acute, rough with hooks turned backwards.

Recept. chaffy, flat. *Chaff* deciduous, flattish.

EUPATO'RIUM. *Tourn.* 259. *Gærtn.* 166.

Cal. *common*, oblong, nearly cylindrical, tiled. *Scales* strap-spear-shaped, upright, unequal.

Bloss. *compound*, uniform, tubular. *Florets* hermaphrodite, equal.

Individuals of 1 petal, funnel-shaped. *Border* with 5 clefts, open.

Stam. *Filaments* 5, hair-like, very short. *Anthers* forming a hollow cylinder.

Pist. *Germen* very small. *Style* thread-shaped, very long, cloven down to the stamens, straight. *Summits* slender.

S. Vess. none. *Calyx* unchanged.

Seeds solitary, oblong. *Down* long, hair-like, or feathered.

Recept. naked.

SANTOLI'NA. *Tourn.* 260. *Gærtn.* 165.

Cal. *common*, hemispherical, tiled. *Scales* egg-oblong, acute, laid close.

Bloss. *compound*, uniform, longer than the calyx. *Florets* hermaphrodite, equal, numerous.

Individuals of 1 petal, funnel-shaped. *Border* with 5 clefts, rolled back.

Stam. *Filaments* 5, hair-like, very short. *Anthers* forming a hollow cylinder.

Pist. *Germen* 4-cornered, oblong. *Style* thread-shaped, as long as the stamens. *Summits* 2, oblong, depressed, lopped.

S. Vess. none. *Calyx* unchanged.
Seeds solitary, oblong, 4-corned. *Down* none.
Recept. chaffy, flattish. *Chaff* concave.

POLYGAMIA SUPERFLUA.

TANACE'TUM. *Tourn.* 261. *Gærtn.* 165.

Cal. *common*, hemispherical, tiled. *Scales* acute, compact.
Bloss. *compound*, tubular, convex. *Florets* hermaphrodite, numerous, tubular, placed in the centre. *Florets* female, a few in the circumference.

Individual hermaphrodites, funnel-shaped. *Border* with 5 clefts, reflected.

Individual females with 3 clefts, more deeply divided on the inner side.

Stam. *Filaments* 5, hair-like, very short. *Anthers* forming a hollow cylinder.
Pist. *Germen* in the hermaphrodites, oblong, small. *Style* thread-shaped, as long as the stamens. *Summit* cloven, rolled back.

Germen in females oblong. *Style* simple. *Summits* 2, reflected.

S. Vess. none. *Calyx* unchanged.
Seeds solitary, oblong. *Down* a sort of border.
Recept. convex, naked.

ARTEMIS'IA. *Tourn.* 260. *Gærtn.* 164.

Cal. *common*, roundish, tiled. *Scales* rounded, approaching.
Bloss. *compound.* *Florets* hermaphrodite, many, tubular, placed in the centre. *Florets* female, generally without any petal in the circumference.

Individual hermaphrodites funnel-shaped. *Border* with 5 clefts.

Stam. *Filaments* 5, hair-like, very short. *Anthers* forming a hollow cylinder, with 5 teeth in the rim.
Pist. *Germen* in the hermaphrodites, small. *Style* thread-shaped, as long as the stamens. *Summit* cloven, rolled back.

Germen in females very small. *Style* thread-shaped, longer than in the others. *Summit* the same.

S. Vess. none, *Calyx* but little changed.
Seeds in all the florets, solitary, naked.
Recept. flat, naked, or woolly.

Obs. In some species the receptacle is naked: in the Artemisia *Absinthium* it is woolly, and the calyx is more globular. Linn.

GNAPHA'LIUM. *Tourn.* 259, *Elychrysum. Gærtn.* 165.

CAL. *common*, roundish, tiled, bordering. The *scales* rounded, skinny, coloured.

BLOSS. *compound. Florets* hermaphrodite, tubular, sometimes mixed with female florets without petals.

Individual funnel-shaped. *Border* with 5 clefts, reflected.

Individual females, without any petal.

STAM. *Filaments* 5, hair-like, very short. *Anthers* forming a hollow cylinder.

PIST. *Germen* in the hermaphrodites, egg-shaped. *Style* thread-shaped, as long as the stamens. *Summit* cloven.

Germen in the females, egg-shaped. *Style* thread-shaped, as long as in the other florets. *Summit* cloven, reflected.

S. VESS. none. *Calyx* permanent, shining.

SEEDS in all the florets solitary, oblong, small, crowned with *down*, which is hair-like or feathered.

RECEPT. naked.

OBS. In Gnaph. *dioicum* the male and female florets are on distinct plants; a circumstance very unusual in this class. LINN.

CONY'ZA. *Gærtn.* 166.

CAL. *common*, tiled, oblong, scurfy; *scales* acute, the outer a little expanded.

BLOSS. *compound*, tubular. *Florets* hermaphrodite, numerous, tubular, in the centre. *Florets* female, numerous, like the others, in the circumference.

Individual hermaphrodites, funnel-shaped. *Border* with 5 clefts, open.

Individual females, funnel-shaped. *Border* with 3 clefts.

STAM. *Filaments* 5, hair-like, very short. *Anthers* forming a hollow cylinder.

PIST. *Germen* in the hermaphrodites, oblong. *Style* as long as the stamens, thread-shaped. *Summit* cloven.

Germen in the females oblong. *Style* thread-shaped, as long, but more slender than in the other florets. *Summits* 2, very slender.

S. VESS. none. *Calyx* closing.

SEEDS in all the florets solitary, oblong. *Down* simple.

RECEPT. naked, flat.

ERIG'ERON. *Gærtn.* 170.

Cal. *common,* oblong, cylindrical, tiled. *Scales* awl-shaped, upright, gradually longer, nearly equal.

Bloss. *compound,* radiate. *Florets hermaphrodite,* tubular, in the centre. *Florets female,* strap-shaped in the circumference.

Individual hermaphrodites funnel-shaped. *Border* with 5 clefts.

Individual females narrow, between strap and awl-shaped, upright, generally very entire.

Stam. *Filaments* 5, hair-like, very short. *Anthers* forming a hollow cylinder.

Pist. *Germen* in the hermaphrodites, very small, crowned with a down longer than the blossom. *Style* thread-shaped, as long as the down. *Summits* 2, oblong, rolled back.

Germen in females, very small, crowned with down, nearly as long as its blossom. *Style* hair-like, as long as the down. *Summits* 2, very slender.

S. Vess. none. *Calyx* closing.

Seeds in all the florets oblong, small. *Down* long, hair-like.

Recept. naked, flat.

Obs. There are sometimes a few male florets in the centre.

TUSSILA'GO. *Tourn.* 258, *Petasites. Gærtn.* 170.

Cal. *common,* cylindrical. *Scales* strap-spear-shaped, equal, (15 or 20,) somewhat membranaceous, even with the top of the flower.

Bloss. *compound,* various. *Florets hermaphrodite,* in some species all tubular, in others only tubular in the centre.

Florets female, in some species strap-shaped, in others entirely wanting.

Individual hermaphrodites funnel-shaped. *Border* with 4 or 5 clefts, acute, reflected, longer than the calyx.

Individual females either none at all, or strap-shaped and very narrow, entire, longer than the calyx.

Stam. *Filaments* 5, hair-like, very short. *Anthers* forming a hollow cylinder.

Pist. *Germen* in the hermaphrodites, short. *Style* thread-shaped, longer than the stamens. *Summit* thickish.

Germen in the females, short. *Style* thread-shaped, as long as the other. *Summit* thickish, cloven.

S. Vess. none. *Calyx* but little changed.

Seeds in all the florets solitary; oblong, compressed. *Down* hairy, standing on a pedicle.

Recept. naked.

Obs. In *T. hybrida* and *T. Petasites* there are no strap-shaped florets in the circumference, but there are female florets, without blossoms. The *T. Farfara* has always strap-shaped florets in the circumference, which are female. Linn.

SENE'CIO. *Tourn.* 260. *Gærtn.* 166.

Cal. *common*, double, conical, lopped. *Scales* awl-shaped, numerous, contiguous, equal, dead at the ends, parallel, contracted above into a cylinder, the base tiled by a few scales.

Bloss. *compound*, taller than the calyx. *Florets hermaphrodite* tubular, numerous, in the centre. *Florets female*, (if any) in the circumference, strap-shaped.

Individual hermaphrodites funnel-shaped. *Border* reflected, with 5 clefts.

Individual females (if any) oblong, with 3 indistinct teeth.

Stam. *Filaments* 5, hair-like, very small. *Anthers* forming a hollow cylinder.

Pist. *Germen* in both sorts of florets egg-shaped. *Style* thread-shaped, as long as the stamens. *Summits* 2, oblong, rolled back.

S. Vess. none. *Calyx* closing so as to form a cone.

Seeds in both sorts of florets solitary, egg-shaped. *Down* hair-like, long.

Recept. naked, flat.

Obs. In some species the florets are all tubular, in others the florets of the circumference are strap-shaped. Linn.

AS'TER. *Tourn.* 274. *Gærtn.* 170.

Cal. *common*, tiled, the inner scales standing out at the points, the lower open.

Bloss. *compound*, radiate. *Florets hermaphrodite*, numerous, in the centre. *Florets females*, 10, or more, strap-shaped in the circumference.

Individual hermaphrodites, funnel-shaped. *Border* with 5 clefts, open.

Individual females, narrow, spear-shaped, with 3 teeth, (at length rolling up.)

STAM. *Filaments* 5, hair-like, very short. *Anthers* forming a hollow cylinder.

PIST. *Germen* in the hermaphrodites, oblong. *Style* thread-shaped, as long as the stamens. *Summit* cloven-expanding.

Germen in females, oblong. *Style* the same as the other. *Summits* 2, oblong, rolled back.

S. VESS. none. *Calyx* but little changed.

SEEDS in all the florets, solitary, oblong or egg-shaped. *Down* hair-like.

RECEPT. naked, flattish.

SOLIDA'GO. *Tourn.* 275, *Virga aurea.* *Gærtn.* 170.

CAL. *common,* oblong, tiled; *scales* oblong, narrow, tapering to a point, straight, approaching.

BLOSS. *compound,* radiate. *Florets hermaphrodites,* tubular, numerous, in the centre. *Florets female,* strap-shaped, fewer than 10, (mostly 5) in the circumference.

Individual hermaphrodites, funnel-shaped. *Border* with 5 clefts, open.

Individual female, narrow, spear-shaped, with 3 teeth.

STAM. *Filaments* 5, hair-like, very short. *Anthers* forming a hollow cylinder.

PIST. *Germen* in hermaphrodites, oblong. *Style* as long as the stamens, thread-shaped. *Summit* cloven, expanding.

Germen in the females, oblong. *Style* thread-shaped, as long as the other. *Summits* 2, rolled back.

S. VESS. none. *Calyx* but little changed.

SEEDS in all the florets, solitary, inversely egg-shaped, oblong. *Down* hair-like.

RECEPT. flat, naked.

CINERA'RIA. *Gærtn.* 170.

CAL. *common,* simple, of many leaves. *Leafits* equal.

BLOSS. *compound,* radiate. *Florets hermaphrodites,* equal, numerous, in the centre. *Florets female,* strap-shaped, equal in number to the leaves of the calyx, in the circumference.

Individual hermaphrodites, funnel-shaped, with 5 clefts, upright.

Individual females, narrow, spear-shaped, finely toothed at the end.

STAM. *Filaments* 5, thread-shaped, short. *Anthers* forming a hollow cylinder, with 5 clefts at the top.

PIST. *Germen* in hermaphrodites, oblong. *Style* thread-shaped, as long as the stamens. *Summits* 2, rather upright.

Germen in females, oblong. *Style* thread-shaped, short. *Summits* 2, oblong, rather blunt, rolled back.

S. VESS. none. *Calyx* unchanged.

SEEDS in all the florets, solitary, strap-shaped, with 4 angles. *Down* hair-like, in large quantity.

RECEPT. naked, rather flat.

IN'ULA, *Gærtn.* 170.

CAL. *common*, tiled. *Leafits* flexible, open, the outer ones the largest, equal in length.

BLOSS. *compound*, radiate, broad. *Florets hermaphrodites* equal, very numerous, in the centre. *Florets female*, strap-shaped, numerous crowded, in the circumference.

Individual hermaphrodites funnel-shaped. *Border* with 5 clefts, somewhat upright.

Individual females, narrow, strap-shaped, very entire.

STAM. *Filaments* 5, thread-shaped, short. *Anthers* 5, narrow, united, forming a hollow cylinder, each anther ending at the base in 2 straight bristles, as long as the filaments.

PIST. *Germen* in hermaphrodites, long. *Style* as long as the stamens, thread-shaped. *Summit* cloven, nearly upright.

Germen in females long. *Style* thread-shaped, a little cloven. *Summits* upright.

S. VESS. none. *Calyx* unchanged.

SEEDS in all the florets, solitary, strap-shaped, with 4 angles. *Down* hair-like, as long as the seed.

RECEPT. naked, flat.

OBS. The 10 bristles at the base of the cylinder formed by the anthers, is sufficient to distinguish it from most other genera. LINN.

DORO'NICUM. *Tourn.* 277. *Gærtn.* 173.

CAL. *common*, with spear-awl-shaped *leafits*, about 20, equal, upright, in 2 rows, often as long as the rays of the blossom.

BLOSS. *compound*, radiate. *Florets hermaphrodite*, tubular, numerous, in the centre. *Florets female*, strap-shaped, equal in number to the leaves of the calyx, in the circumference.

Individual hermaphrodites, funnel-shaped. *Border* with 5 clefts, segments open.

Individual females, narrow, spear-shaped, with 3 teeth.

STAM. *Filaments* 5, hair-like, very short. *Anthers* united, forming a hollow cylinder.

PIST. *Germen* in hermaphrodites, oblong. *Style* thread-shaped, as long as the stamens. *Summit* notched at the end.

Germen and *Style* in females, the same. *Summits* 2, bent back.

S. VESS. none. The *Calyx* slightly closing.

SEEDS *in hermaphrodites* solitary, inversely egg-shaped, compressed, furrowed. *Down* hair-like.

In females the same, only slightly compressed. *Down* none.

RECEPT. naked, flat.

BEL'LIS. *Tourn.* 280. *Gærtn.* 168.

CAL. *common* hemispherical, upright. *Leafits* from 10 to 20, placed in a double row, spear-shaped, equal.

BLOSS. *compound*, radiate. *Florets hermaphrodite*, tubular, numerous in the centre. *Florets female* strap-shaped, more in number than the leaves of the calyx, in the circumference.

Individual hermaphrodites, funnel-shaped, with 5 clefts.

Individual females, narrow, spear-shaped, very slightly marked with 3 teeth.

STAM. *Filaments* 5, hair-like, very short. *Anthers* forming a hollow cylinder.

PIST. *Germen* in hermaphrodites, egg-shaped. *Style* simple. *Summit* notched at the end.

Germen in females egg-shaped. *Style* thread-shaped. *Summits* 2, standing wide.

S. Vess. none. *Calyx* unchanged.

Seeds in all the florets, solitary, inversely egg-shaped, compressed. *Down* none.

Recept. naked, conical.

CHRYSAN'THEMUM. *Tourn.* 280. *Gærtn.* 168.

Cal. *common*, hemispherical, tiled. *Scales* lying close upon each other; the *inner* gradually larger; the very innermost terminating in a skinny scale.

Bloss. *compound*, radiate. *Florets* hermaphrodite, numerous, tubular, in the centre. *Florets* female, 12 or more, in the circumference.

Individual hermaphrodites, funnel-shaped, with 5 clefts, open, as long as the cup.

Individual females, strap-shaped, oblong, with 3 teeth.

Stam. *Filaments* 5, hair-like, very short. *Anthers* forming a hollow cylinder, generally shorter than the blossom.

Pist. *Germen* in hermaphrodites, egg-shaped. *Style* thread-shaped, longer than the stamens. *Summits* 2, rolled back.

Germen in females, egg-shaped. *Style* thread-shaped, as long as the other. *Summits* 2, blunt, rolled back.

S. Vess. none. *Calyx* unchanged.

Seeds in all the florets, solitary, oblong. *Down* none, or only a border.

Recept. naked, dotted, convex.

Obs. In the first division of the species, the female florets are spear-shaped, and the membranes of the calyx narrow; but in the second division egg-shaped and lopped, and the membranes of the calyx egg-shaped. Linn.

MATRICA'RIA. *Tourn.* 281. *Gærtn.* 168.

Cal. *common*, hemispherical. *Scales* strap-shaped, tiled, not quite equal; not skinny.

Bloss. *compound*, radiate. *Florets* hermaphrodite, tubular, numerous, in the centre, which is hemispherical. *Florets* female many, in the circumference.

Individual hermaphrodites, funnel-shaped, with 5 clefts, expanding.

Individual females oblong, with 3 teeth.

Stam. *Filaments* 5, hair-like, very short. *Anthers* forming a hollow cylinder.

Pist. *Germen* in hermaphrodites, oblong, naked. *Style* as long as the stamens, thread-shaped. *Summit* cloven, expanding.

Germen in females, naked. *Style* thread-shaped, nearly as long as in the others. *Summits* 2, rolled back.

S. Vess. none. *Calyx* unchanged.

Seeds in all the florets, solitary, oblong. *Down* none.

Recept. naked, convex.

AN'THEMIS. *Tourn.* 281, *Chamæmelon. Gærtn.* 169.

Cal. *common,* hemispherical. *Scales* strap-shaped, nearly equal.

Bloss. *compound,* radiate. *Florets* hermaphrodite, tubular, numerous, in the centre, which is convex. *Florets* female, more than 5, in the circumference.

Individual hermaphrodites, funnel-shaped, with 5 teeth, upright.

Individual females narrow, spear-shaped, sometimes with 3 teeth.

Stam. *Filaments* 5, hair-like, very short. *Anthers* forming a hollow cylinder.

Pist. *Germen* in hermaphrodites, oblong. *Style* as long as the stamens, thread-shaped. *Summits* 2, bent back.

Germen in females oblong. *Style* the same as in the others. *Summits* 2, rolled back.

S. Vess. none. *Calyx* unchanged.

Seeds in all the florets solitary, oblong. *Down* none, or only a border.

Recept. chaffy, conical or convex.

ACHILLE'A. *Tourn.* 283, *Millefolium. Gærtn.* 168.

Cal. *common,* egg-shaped, tiled. *Scales* egg-shaped, acute, approaching.

Bloss. *compound,* radiate. *Florets* hermaphrodite, tubular, in the centre. *Florets* female, 5 to 10, strap-shaped, in the circumference.

Individual hermaphrodites funnel-shaped, with 5 clefts, open.

Individual females strap-shaped, inversely heart-shaped, expanding, cloven into 3 segments, the middlemost the smallest.

Stam. *Filaments* 5, hair-like, very short. *Anthers* forming a hollow cylinder.

PIST. *Germen* in hermaphrodites small. *Style* thread-shaped, as long as the stamens. *Summit* blunt, notched at the end.

Germen in females small. *Style* thread-shaped, as long as the other. *Summits* 2, blunt, bent back.

S. VESS. none. *Calyx* but little changed. *Receptacle* thread-shaped, lengthens out when loaded with the seeds, egg-shaped, and twice as long as the calyx.

SEEDS in all the florets, solitary, egg-shaped, woolly. *Down* none.

RECEPT. chaffy, elevated. *Chaff* spear-shaped, as long as the florets.

POLYGAMIA FRUSTRANEA.

CENTAURE'A. *Tourn.* 254 & 256. *Gærtn.* 161, *Cyanus.*

CAL. *common*, tiled, roundish; *scales* often terminating variously.

BLOSS. *compound*, florets all tubular, but of different shapes. *Florets* hermaphrodite, many, in the centre. *Florets* female not so many, larger, more flexible, in the circumference.

Individual hermaphrodites of 1 petal. *Tube* thread-shaped. *Border* bellying, oblong, upright, terminating in 5 strap-shaped upright segments.

Individual females of 1 petal, funnel-shaped. *Tube* slender, gradually becoming wider, bent backwards. *Border* oblong, oblique, unequally divided.

STAM. *Filaments* 5, hair-like, very short. *Anthers* forming a hollow cylinder, as long as the blossom.

PIST. *Germen* in hermaphrodites small. *Style* thread-shaped, as long as the stamens. *Summit* very blunt, (in many cloven) with a projecting point.

Germen in females very small. *Style* next to none. *Summit* none.

S. VESS. none. *Calyx* unchanged, closing.

SEEDS in the hermaphrodites solitary. *Down* mostly feathered, sometimes hair-like.

RECEPT. bristly.

OBS. The scales of the calyx, and the down of the seeds, are different in different species. LINN.

POLYGAMIA NECESSARIA.

CALEN'DULA. *Tourn.* 284, *Caltha. Gærtn.* 168.

CAL. *common,* simple, of many leaves, rather upright. *Segments* strap-spear-shaped, 14 to 20, nearly equal.

BLOSS. *compound,* radiate. *Florets,* hermaphrodites many, in the centre. *Florets, females* many, very long, in the circumference; as many as the scales of the calyx.

Individuals, hermaphrodite, tubular, with 5 shallow clefts, as long as the calyx.

Individuals, females, strap-shaped, very long, with 3 teeth, without nerves, woolly at the base.

STAM. *Filaments* 5, hair-like, very short. *Anthers* united so as to form a hollow cylinder, as long as the blossom.

PIST. *Germen* in the hermaphrodites, oblong. *Style* thread-shaped, hardly so long as the stamens. *Summit* blunt, cloven, straight.

Germen in the females, oblong, 3-sided. *Style* thread-shaped, as long as the stamens. *Summits* 2, oblong, tapering to a point, reflected.

S. VESS. none. *Calyx* closing, roundish, depressed.

SEEDS in the hermaphrodites in the centre, none: more outwardly, few, solitary, membranaceous, inversely-heart-shaped, compressed.

Females (in the circumference) solitary, larger, oblong, bent inwards, triangular, membranaceous at the angles, marked on the outer side lengthwise, as if engraved with the figure of a plant. *Down* none.

RECEPT. naked, flat.

FILA'GO. *Gærtn.* 166.

CAL. *common,* cylindrical or 5-cornered, tiled. *Scales outer,* egg-spear-shaped, acute, cottony; *inner* shining, coloured, tapering to a point.

BLOSS. *compound. Florets,* hermaphrodites, few, tubular, in the centre. *Florets,* females tubular, numerous, surrounding the former. Other *females,* mostly without petals, fewer, placed immediately within the scales of the calyx.

Individuals, hermaphrodite, funnel-shaped. *Border* with 4 clefts, expanding.

Individuals, female, immediately surrounding the preceding, funnel-shaped. *Tube* very slender, swollen at the base. *Border* cloven, acute.

STAM. *Filaments* in the hermaphrodites 4, very short. *Anthers* forming a cylinder.

PIST. *Germen* in the hermaphrodites, very small, abortive. *Style* hair-like, as long as the border. *Summits* 2, upright, but standing wide.

Germen in the females immediately surrounding the above, oblong. *Style* hair-like, longer than the border. *Summits* 2, open.

Females immediately within the calyx. *Germen* oblong. *Style* hair-like, longer than the border. *Summits* 2, long, expanding.

S. VESS. none. *Calyx* unchanged.

SEEDS of the hermaphrodites barren, crowned with down.

——- of the *inner females* oblong, crowned. *Down* short, simple.

——- of the *outer females* oblong, naked.

RECEPT. naked.

OBS. This generic description is taken from the observations of the very accurate and admirable Leers; it accords with our species, which is by no means the case with that given by Linnæus, who is said to have formed it from a view of the Filago acaulis.

CLASS XX.

CRYPTOGAMIA.

It is well known, that the attention of Linnæus was much less engaged by the Class Cryptogamia, than by the other Classes which are formed of plants with more obvious fructifications. It was his glory to have established a system upon the organs of generation, (the stamens and pistils) of all others the most essential parts of a plant, and this system he has wrought up to such a state of perfection, that little, compared to what he himself has done, remains for his successors to do; except the additions it may receive from more extended researches in countries imperfectly, or not at all explored before. But the plants of the Cryptogamia Class, not falling under his peculiar system, were to him less interesting, and therefore, probably, were less attended to. Of the four natural Orders into which he divided this class, he seems chiefly to have improved our knowledge of the FILICES. The MUSCI and the ALGÆ had been so successfully explored and so excellently figured by Micheli and Dillenius; and Gmelin having done much on the subject of the FUCI, there remained, in these extensive tribes, but little more for Linnæus to do, than to distribute and characterize them according to his own ideas. The FUNGI, at one time, attracted his attention, but the difficulty of preserving them in a state fit for comparing together, and the impracticability of transporting his books along with himself in his various journies, seem to have checked his pursuits; neither could he benefit, as we now do, by the almost innumerable figures which have been published since the formation of his system. From these causes he has done but little in the FUNGI, and that little has been ill understood. Our countryman, the excellent RAY, paid great attention to these subjects; but for want of figures, or more extended descriptions, it is often difficult, sometimes impossible, to determine his species.

It has just been observed, that we are indebted for the knowledge we have of the Mosses, the Lichens, and most of the other genera of the Algæ, to the indefatigable industry of Dillenius, and the sagacious scrutiny of Micheli, from these authors, therefore, as well as from the Historia Fucorum of Gmelin, the reader will find the most important parts of the descriptions extracted and subjoined to each species. These can hardly fail to be considered as acceptable additions to the present work, not only because none can be expected to describe these plants better than those who have figured them so well, but also on account of the great scarcity of the original work of Dillenius, which few are so happy to possess. The copies printed were only 250, and of these, but few remain in England. Impressions of his plates are easily obtained, and the scarcity of the letter-press will, hereafter, in this country, be the less regretted. Nor have the labours of Jacquin, or Hoffman, of Wiegel, or of Batsch, of Pollich, or of Weis, been neglected; they, and several others, now contribute occasionally to the illustration of the species, and to the instruction of the English Botanist. It must be observed that, on these occasions, the author has not aimed at a literal translation: he has endeavoured to catch the ideas of the writers, and to communicate them to his readers in as small a compass as the English language would well permit; carefully assigning to each the share they have contributed. But in bringing my readers to an acquaintance with this Class, it would be unpardonable to make no mention of the illustrious HEDWIG, who has immortalized his name by the accuracy of his researches, and the splendour of his discoveries, in these obscure families of plants. He communicated the result of his observations to the Academy of Sciences at Petersburgh, in the year 1783.* As this work is but little known to the English Botanist, I shall subjoin the following compendious view of the subject, confining myself principally to the discoveries more immediately relating to the parts of fructification. Those who wish for further information, cannot fail of being highly gratified by an examination of the original work, and by a perusal of this very ingenious author's subsequent publications.

He introduces his subject with an account of the views of his predecessors in this branch of Natural History and though he mentions the mistakes in which many of them had been involved, he does ample justice to those who had anticipated him in any part of his discoveries.

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* See Theoria Generationis et Fructificationis plantarum Cryptogamicarum Linnæi.— Petropoli. 1784. quarto.

The Cryptogamia Class may be considered as containing a number of vegetables whose flowers and fructification are but little or very imperfectly known, and whose stamens and pistils are too minute to admit of that mode of investigation which prevails through the preceding classes. The structure, too, of these vegetables, differs considerably from that of other plants.

They may be divided into the following orders or assemblages: 1, MISCELLANEÆ; 2, FILICES: 3. MUSCI; 4, HEPATICÆ; 5, ALGÆ; 6, FUNGI. Concerning each of these we shall now speak more particularly.

MISCELLANEÆ. (Schreb.) Miscellaneous.

The plants comprized in this Order, are such as are incapable of arranging under any of the subsequent Orders, neither do they agree one with another. They are reducible to some one of the following Genera.

Equisetum. *Lycopodium.* *Pilularia.* *Isoetes.*

EQUISETUM. Hedwig illustrates the structure of this genus by a particular examination of the Equisetum *sylvaticum*, and E. *palustre*. The former, as well as the E. *arvense*, protrudes its club-shaped head out of the earth early in the spring. Round this head are placed, in circles, target-shaped substances, each supported on a pedicle, and compressed into angles in consequence of resting against each other previous to the expansion of the spike. Pl. xiii. f. 1. *e. f.* Beneath each of these targets we find from 4 to 7 conical substances, with their points leaning a little inward towards the pedicle. fig. 2. *f.* They open on the inner side, and upon shaking them over a piece of paper, a greenish powdery mass falls out, which at first is full of motion, but soon after looks like cotton or tow. So far may be discerned by the naked eye, but a good microscope discovers green oval bodies, and attached to each of them, generally 4 pellucid and very slender filaments, spoon-shaped at the end. f. 3. 4. These are almost constantly in motion, contracting upon the least breath of moist air, and when wet with water rolling round the oval body. f. 5.

In the Equisetum *palustre* the filaments are broader, and the green oval or globular subtance more pointed. f. 6. This is undoubtedly the *Seed*, for it gradually increases in bulk, and when it falls, the spike shrivels. Its projecting point is the *Summit*, and the conical substances under the targets are the capsules.

The scales which surround the flowering stalk at certain distances after its protrusion, served whilst it was yet young, as a general fence to the spike.

Hence it appears, that the genus EQUISETUM contains both stamens and pistils, within the same calyx.

The flowering *Spike*, or general calyx, scaly and tiled; the partial calyx target-shaped.

Filaments 2. *Anthers* 4, one at each end of the filament.

Summit single.

Capsule a target of 4, 5, 6, or 7 cells.

Seeds numerous, egg-shaped or globular; placed upon, and lapped up within the filaments.

For the other three genera in this assemblage, the reader is desired to look forward to their respective generic characters.

FI´LICES. (Ferns.)

The plants of this Order have their flowers generally disposed in spots or lines on the under surface of the leaves, as in the ASPLENIUM, (plate I. B.) but sometimes in spikes, as in the Osmunda.

Male flowers.

ANTHERS sitting, or supported on a very short filament, egg-shaped or globular, scattered on the under surface of the leaves.

Female flowers, uniting so as to form a *spike*, or collected into a *bunch*; or forming *lines* or *dots*, which are found underneath the leaves, either on the surface, at the edge, or at the point; and in some instances entirely covering the whole under surface.

CALYX none, or only a scale formed from the leaf, opening, containing globules.

BLOSS. none.

PIST. A *globule* sitting, or supported on a pedicle. *Style* none.

S. VESS. *Capsule* sitting, or on a pedicle, nearly globular; in most instances surrounded by an elastic and jointed ring which is produced from the pedicle; opening transversely when ripe, and discharging the seeds.

SEEDS many, very minute, globular. (Schreb.)

In the months of September and October this curious mechanism is very evident in the Common Brakes, (PTE'RIS,) or in the Hart's-tongue, (ASPLE'NIUM *Scolop.)* by the assistance of a good single Microscope with a reflecting Speculum. The sudden jerk of the springing cord frequently carries the object out of the field of view, so that it requires some patience to observe the whole of the process.

As there are no certain distinctions in the flowers themselves sufficient to establish the Genera, these are known by the disposition of the seeds under their covers.

OPHIOGLOS'SUM *vulgatum*. Examining the spike in its advanced state, with a moderate magnifier, we find columns on each side, with cavities opening transversely, scattering a powder, and beset with innumerable *eminences* tiled one upon another like scales. With a very fine knife slice off a portion, so as it may have a little of the column on each side. Examine this in a good compound microscope, reflecting the light through it. Transverse lines will then appear, which, as well as the interstices between them, are more opake than the part on each side. Pl. xiii. f. 7. It is easy to scrape off some of the *eminences* with the back of a knife; put them into a little water, and use higher and higher magnifying powers; you will then discover simple and compound bodies, mostly oval, surrounded with a more pellucid line, and containing a granulated substance within. f. 8.

Others may decide whether the leaf in this plant answers the purpose of an Involucre or Calyx whilst it is in flower; but I consider the spike as bearing both Stamens and Pistils; the *Anthers* occupying the interstices of the Germens, which are furnished with a transverse *Summit*.

It may be remarked that the Spike is at first yellowish, changing to brown, when the Capsules open and discharge their powder. This powder is the real seed, for after its discharge the plant gradually perishes, though new shoots are sent out the ensuing year.

OSMUN'DA *spicant.* Hedwig thinks this undoubtedly belongs to the Genus ACROSTICHUM, but we rather refer it with Dr. Smith to the BLECHNUM.

Early in the spring the flowering leaves come up, almost rolled into a ball, and not the leaves only, but the leafits also are rolled up. f. 9. On the back side of each of these leafits there are two white lines, extending from the base of the leafit to the point; they are bordered with green, and depressed in the middle. f. 10. These white lines are fine membranes, and on carefully separating them at their union with the leafit, we discover very minute pellucid bodies, supported upon footstalks. f. 11. *c. c.*

In the younger leafits, by the assistance of high magnifiers, we may discover small bodies of a brownish cast, composed of two parts, the one very slender and pellucid, proceeding from the rib, the other a coloured oval globule standing upon it. Pl. 13. f. 11. When the leafit is fully unfolded, and the lines become more turgid, these corpuscles upon the rib disappear. (Hedwig.)

POLYPO'DIUM *Thelypteris.* This, as Hedwig observes, does not well rank with the Acrosticha, to which Genus Linnæus referred it. The disposition of its fructification accords with the Polypodiums.

Schmidel. Icon. plant, t. xi. 13. p. 45. has delineated and described this plant so accurately, that nothing remains to be added, but that the vesicles of a shining yellow colour, viz. the Anthers, are found upon the rib, and its ramifications, as well as upon the projecting edges of the membranes which cover the clusters of seed vessels.—(Hedwig.)

POLYPO'DIUM *F. fœmina.* When it first springs out of the earth, and is yet in its curled state, we find by the assistance of a good Microscope, the back side of the leafits covered with turgid capsules, f. 12. On the other side, abundance of spherules of a milky colour, supported upon pedicles.

Under the highest magnifier, these substances appear to consist of a very pellucid and tender pedicle, supporting a nearly opake globule, filled with a granulated mass. f. 13.

When the leafits and leaf are quite unfolded, all these substances disappear, whilst those on the under surface gradually enlarge, and ripen their seed. (Hedwig.)

ASPLE'NIUM *Trichomanes.* Whilst this springs out of the ground, and is yet rolled inwards, the leafits are very minute and fleshy. On their under surface, when highly magnified, crescent-shaped membranes may be perceived covering the minute grains, which afterwards become capsules. f. 14. At the same time, but chiefly towards the middle nerve of the leafit, white shining globules are found. These put into a drop of water, and viewed with the highest magnifier, will be seen to consist of a thick and very transparent foot-stalk, supporting a globule filled with a granulated mass. f. 1.

It is unnecessary to be particular respecting the Asplenium *Scolopendrium*, Aspl. *Ruta-muraria*, Polypodium *F. Mas.* Polypod. *Phægopteris*, Polypod. *Dryopteris*, all which I have examined in a recent state, and in all which I have found similar organs, at the time the leaves first put forth.

The membranaceous scaly productions upon the stalks, so plentiful in some species, have probably been the coverings of the now expanded parts, during the winter seasons.

There can be no doubt as to the uses of the other parts described above. None of these are found in the full grown plant. It is well known that whilst perennial plants ripen their seeds, the formation of new fructifications is going on. It is shewn, that the Equiseta perform their impregnations before they spring up. When the curled-up leaves of the Ferns begin to unfold, the Capsules are generally swollen; this is particularly obvious in the Osmunda *regalis*, whose fertile leaves shoot up early in the spring, and ripen their capsules in July.

There can be no doubt that these Capsules are real Seed-vessels, sometimes opening vertically, and sometimes horizontally into two hemispheres, which are surrounded by an elastic ring. (Hedwig.)

Explanation of the Plate belonging to the FILICES.

Pl. xiii. Fig. 1. A fruit bearing head of the Equisetum *sylvaticum* of its natural size, beginning to disperse its seeds.

2. A Capsule bearing Target, with its fruit-stalk magnified.*
3. An unripe Seed, with its stamens.
4. A ripe Seed, with the dust of the Anthers scattered on the filaments.
5. A Germen, with the Stamens rolled round it in their natural position.
6. A Seed of the Equisetum *palustre.*
7. A particle from the side of the Stalk of the Ophioglossum *vulgare,* whilst very young. *(a)* the convex part, bearing both the Stamens and Pistils. *(b)* a portion of the skin, with a little of the pulp, from the outer side of the stalk. *(c.)* the same from the inner side.
8. Anthers of the same plant simple and compound.
9. A back view of a leafit of the Blechnum *spicant*, of its natural size.
10. A particle of the leaf with a single leafit, *(a)* the leafit. *(bb)* Scales. *(cc)* membranaceous coverings of the Capsules.
11. A particle of the same more highly magnified. *(a)* the rib, with the Stamens upon it. *(bb)* the membrane turned back each way. *(cc)* the rudiment of the fruit.
12. An extremely small leafit of the Polypodium *Filix fœm.* carefully expanded to shew the Stamens.
13. Two of the Stamens taken out.
14. Leafits of the Asplenium *Trichomanes* from the yet unfolded extremity of the

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* To prevent repetition, it is always understood that the parts are more or less magnified, unless when the contrary is particularly expressed. The Author used a good compound Microscope, with six magnifying powers.

Pl. XIII

8
6
2
a
b
c
7
4
3
b
a
b
c
10
5
9
b
c
a
a
c
b
a
b
13
14
15
10

leaf. The Globules supported on footstalks are the Stamens, the oblong spots the membrane covering the pistils.

FIG. 15. Two of the Stamens taken out.

16. A particle of the receptacle of the female florets. *(a)* the receptacle. *(b)* the skin of the leafit, with its air ducts.

THE USES of the FILICES are but little known: few of them are esculent. They have a disagreeable heavy smell. In large doses they destroy worms, and some of them are purgative. The ashes produced by a slow incineration of the green plants, contain a considerable portion of vegetable alkaly, and in this kingdom are very generally sold under the name of Ash-balls, to make lye for scouring linen.

" In the hot-house they become evergreens, and their " beauty is greatly improved in colour and delicacy. The " leaves, if cut down when fully grown, and properly " dried, make a thatch more durable than that of any " kind of straw.

" In most of the Genera of the second subdivision, " the seedling plants require a succession of seasons before " they produce their fructifications. The *first* year a single " leaf is produced, which seldom attains to more than an " inch in height, is thin, semi-transparent, and most commonly entire. The *second* year two or three are produced, one larger than the other. The *third* year, four " or five are produced, and the *fourth* year, more in number proportionable to the richness of the soil and the " suitableness of the situation. In moist fertile soils, " shaded situations, mossy dripping rocks, or near currents " or rills of spring water, the leaves are thin, light and " semi-transparent; larger and more numerous, and apt " to become monstrous in shape or size. On dry rocks, " and in barren soils exposed to air and sun, the leaves " are few, short, firm and opaque, producing seeds in " fewer years from the first springing up, and they generally retain their own proper figure." BOLT.

MUS'CI. (Mosses.)

The female parts of fructification are inclosed in a Veil, which adheres to the top of the ripe capsule, and covers it. Capsule (rarely entire) opening transversely. Stems leafy. Leaves membranaceous, reticulated, after being dried reviving, when soaked in water.

Male flowers.

CAL. common, of many leaves. *Leafits* in structure resembling those of the plant, but generally broader, sometimes coloured, open and expanding like the rays of a star or the petals of a full blown rose, or else closing and approaching like a bud. A few Mosses have no appearance of a calyx.

BLOSS. none.

STAM. numerous, within the common calyx, mostly separated by succulent threads or chaff-like substances. Sometimes they unite so as to form a little knob, or are placed in the bosoms of the upper branches. *Filament* short, thread-shaped. *Anthers* sometimes heart or egg-shaped, but mostly cylindrical, 1-celled, opening at the top, and discharging granulated pollen.

Female flowers on the same or on a different plant, sometimes intermixed with the males.

CAL. Perichætium many-leaved. *Leafits* various, generally inclosing several pistils intermixed with succulent threads.

BLOSS. *Veil* cylindrical or conical, investing the germen and fixed to its top, united at the base to the sheath of the fruit-stalk, but not elsewhere attached.

PIST. *Germen* cylindrical or conical. *Style* slender, standing on the veil. *Summit* lopped.

S. VESS. *Capsule* standing on a fruit-stalk which is sheathed at its base, when unripe crowned by the veil which separates at its base, adhering to the point of the capsule, but falls off when that becomes ripe. The capsule then opens horizontally, the lid separating.

Lid with or without a ring, single; or double, the outer one cartilaginous, sometimes swollen, or else contracted at the base, forming a kind of excrescence called Apophysis.

Mouth of the capsule either naked, or closed with an outer fringe.

Outer fringe with from 4 to 32 teeth, which are upright or reflected, straight or twisted, triangular, spear-shaped, or bristle-shaped; acute or blunt.

Inner fringe finer, either closely adhering to the outer, or joined to it by threads from its inner side, or loose and unconnected, or fixed to the pedicle on its little bulb. *Mouth* naked, or covered with a membrane or net-work of the inner fringe, or variously jagged, or closed by distinct and regular teeth. *Column* extending from the base to the point of the capsule, thread-shaped, straight, passing through the lid into the style, and often giving the lid a pointed appearance.

SEEDS numerous, minute, spherical, smooth or rough.

Such is the general character of the Mosses, which Schreber has made out from the discoveries and observations of Hedwig, but we shall now introduce some more particular remarks from Hedwig himself.

HEDWIG defines Mosses, as being vegetables in which the female parts of fructification are furnished with a veil-like petal, bearing a style. He divides them into two Orders:

1. *Capsule* either entire, lidded, and opening transversely: *frondosi.*

2. *Capsule* with 4 valves, opening lengthwise; *hepatici.*

These definitions exclude the LYCOPODIA from amongst the Mosses. Perhaps they should rank with the Osmunda; but their fructification has not yet been sufficiently examined. The Musci hepatici are now formed into an assemblage of themselves, separate from the proper Mosses. See the fourth Order.

Observations on the proper Mosses, or MUSCI *of Linnæus.*

If we except the BRYUM *pomiforme, subulatum* of Haller,—*trichodes*, and a few other non-descript species, the Mosses bear the stamens and pistils in separate flowers, either on the same, or on distinct plants.

The time of flowering generally coincides with that of the fruit attaining maturity, as happens in other evergreen perennials. Thus, in the Polytrichum *urnigerum*, Mnium *fontanum, hornum, punctatum, undulatum*; Bryum *trichodes, cæspiticium*, &c. the veils fall off early in the spring, and the seed is scattered abroad; whilst at the same time the less obvious unimpregnated germens, and the male or stameniferous flowers are performing their respective functions. This circumstance has caused these ripe capsules to be mistaken for anthers, and the seeds for the pollen.

Calyx *or* Perichætium.

Both the Male and Female flowers are furnished with an Involucrum, which gives the outward figure to the flower. This Involucrum in Mosses has attained the appropriate name of Perichætium. It varies more in the male than in the female flowers; and is more to be attended to. The radiated disks of the Polytricha and the Mnia, are very remarkable, and the scales composing them differ in many respects from the other leaves of the plant. The heads which put forth at the extremities of the Brya have been hitherto unnoticed, though they contain the parts of fructification, and are composed of leafits or scales, different both in shape and size from the stem-leaves. Thus in the Bryum *rurale*, they are not terminated by hairs, and are shorter than the stem-leaves; in the Br. *pellucens*, Br. *scoparium*, Br. *heteromallum*, Br. *aciculare*, &c. they are broader than the other leaves, and more hollow at the base. Where the disk-like substances form a kind of bud, as in almost all the Hypna, the Bryum *extinctorium*, Br. *subulatum*, Br. *pulvinatum*. Br. *hypnoideum*, &c. they are much smaller than the leaves; they are also concave, egg or spoon-shaped, and destitute of the hairs which adorn the real leaves of the plant. These therefore are truly the calyx, and as they include the florets with stamens only, we call them the Perichætia of the *male* Florets.

Upon an accurate inspection of the Mosses which bear capsules towards their extremities, i. e. female flowers, we observe that the leaves adjoining to the fruit-stalk are much more beautiful than those on the stems. But some-

Pl. xiv

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times the inner leaves become gradually smaller, and those nearest to the flowers so very minute, that without a microscope it is not possible to dissect them away so as to expose the flower. Thus pl. xiv. f. 19. exhibits a plant of the BRYUM *pyriforme*, *(a)* contains the male, *(b)* the female flower; f. 20. shews the female flower laid bare to the last conspicuous leaf, within which the flower lies hidden, but this being removed, other still smaller scales come into view. f. 21.

These, therefore, are to be considered as the Involucrums of the female flowers, surrounding and embracing the germen. These Involucrums, like those in many other well known plants, often grow larger as the capsule advances to maturity. Pl. xiv. f. 17. A small plant of the BRYUM *extinctorium*, with the lower leaves taken away, to shew the bud-like calyx of the male floret. *(a.)*

f. 18. A plant of the BRYUM *pulvinatum*, with the leaves taken away to shew the flowering buds, *(a)* the male, *(b)* the female flower.

f. 19. A female and a male plant of the BRYUM *pyriforme*.

f. 20. The female floret inclosed within its innermost leaves.

f. 21. The same, with all but one of its leaves removed.

Male, or stameniferous flowers.

The ANTHERS are almost universally cylindrical, and either straight or crooked, but in the SPHAGNUM *palustre*, and the MNIUM *androgynum*, they are egg-shaped and more or less tapering to a point. Their colour is a very dilute green, almost white. When viewed under the highest magnifiers, and strongly illuminated by reflected light, they are found to contain a granulated substance; but their tops are very pellucid, and this pellucid part expands into a rising vesicle, at the time the pollen is about to be discharged, as at *(c)* pl. xiv. f. 22. The top then opens and the pollen is ejected, the space from which it issues becoming more transparent. This pollen, when evacuated, seems to explode in the drop of water, in which these observations ought to be made. See f. 23.

Besides the Anthers, included within the same Involucrum, we find some very delicate succulent bodies, of various shapes. In the POLYTRICHUM *commune* they are club-shaped, but tapering to a point; in the MNIUM *fontanum*, and *palustre*, the BRYUM *rurale* and *undulatum*, they are jointed and bluntish. In the BRYUM *hornum* the last joint is acute. In MNIUM *serpyllifolium*, *punctatum*, *cuspidatum*, and BRYUM *pyriforme*, they have a jointed stem terminated by a globule. f. 24. In the MNIUM *hygrometricum* they have different shapes in the same floret; in some they are thread-shaped, and more or less pointed; in the SPHAGNUM *palustre* they encircle the anther. Sometimes they are much longer than the anthers, as in the BRYUM *pellucidum* and *pyriforme*, at other times shorter, as in BUXBAUMIA *sessilis*, and BRYUM *pulvinatum*.

We must add, respecting the shape of these barren florets, that in the POLYTRICHA and MNIA some are like disks, others like roses, and some like stars, when in a fully expanded state. In the stellated Polytrichums, the scales are placed in concentric circles. In MNIUM *hornum*, *palustre*, *fontanum*, &c. they are more like a rose or a disk. After the pollen is dispersed, these roses or stars become more expanded, but previous thereto, they are generally so open as to admit a view of the parts they contain. In some Mosses the flowers terminate the branches, as in MNIUM *pyriforme*, and *purpureum*; BRYUM *pellucidum*, *aciculare*, *scoparium*, *heteromallum*, *viridulum*, *simplex*, &c. in such, though a little open, they are not enough so to allow a sight of the anthers, until the flowering be past. Some florets are like buds, and sit in the bosom of the leaves, and others in the tiled and thickened termination of the branches, as in the SPHAGNUM.

Two stamens of the BRYUM *extinctorium*, *(c)* one ready to burst, *(d)* one throwing out its pollen, *(e. e. e.)* succulent vessels. Pl. xiv. f. 22.

f. 23. An Anther of the BRYUM *truncatulum* viewed in the Solar Microscope whilst it throws out its pollen.

f. 24. An Anther of the BRYUM *pyriforme*, with *(aa)* the succulent vessels.

Female flowers.

These are furnished with the usual female organs, viz. a Germen, a Style, and a Summit, pl. xiv. fig. 25; but being accompanied by other substances much resembling them, they are difficult to be distinguished until the germen begins to swell, in consequence of its impregnation. These substances, of whose use I acknowledge myself ignorant, may for the present be called *succulent* pistils; see fig. 26. They are so like the real pistils, that one might readily believe nature had formed the flowers with many pistils, in order that some might have the better chance of impregnation. But there are several circumstances which refute this supposition. Probably they are intended to supply the flowers with moisture in dry weather.*

The rudiment of the fruit, or pistil of the BUXBAUMIA *sessilis*. Pl. xiv. f. 25.

f. 26. A female flower of the BRYUM *extinctorium*, with the *succulent* pistils.

Of the CAPSULE *and the* CALYPTRA *or* VEIL.

The pistils, after impregnation, daily growing larger, and rising upwards, shew the part well known by the name of Calyptra or Veil. It may be considered as a kind of petal, which is perforated at the top by the style of the pistil. This style is sometimes permanent, falling off with the veil; but where it is not so, the remains of it are always to be found.

f. 27. A Capsule of the BRYUM *pulvinatum*, with a part of the fruit-stalk. The VEIL being thrown off, the RING and the PERISTOMA, or FRINGE, become visible.

f. 28. The RING when separated and expanded.

f. 29. The VEIL.

f. 29.*The VEIL of the JUNGERMANNIA *pusilla*.

Of the CAPSULE *or* *Seed-vessel.*

From what has been alledged, it is evident that what Linnæus called the Anthers, are really the Seed-vessels, and by sowing the seed which they contain, I have repeatedly procured a crop of young plants, in all respects similar to their parents.

The Capsules of Mosses are always supported upon a fruit-stalk, though sometimes it is very short; and excepting only in the SPHAGNUM *palustre*, this fruit-stalk is sheathed and conical at its base. The CAPSULES vary in shape, size, and consistence. In some species there is an elastic ring between the capsule and the veil, p. xiv. f. 28. which, when the seed is ripe, throws off the veil with more or less force. The Veil, f. 29, being thrown off, we find certain fringe-like processes or projections, f. 27. (*a*) varying greatly in size, shape, structure, number, and disposition. They surround the opening of the capsule in a single or double, rarely in a triple series. These substances I shall beg leave to call the * PERISTOMA, or Fringe. The use of this Peristoma, or Fringe, seems to be to defend the seeds in wet weather. In dry weather it expands and leaves the mouth of the capsule open, but upon the least moisture, even that of one's breath, it closes again.

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* These substances may aptly be compared to the florets with superfluous pistils in the order Polygamia superflua of the class Syngenesia, or to the barren florets in the umbelliferous plants of the Pentandria class; and their uses may probably be the same, whatever those uses may be.

SEEDS.

The seeds of Mosses are spherical, generally smooth, sometimes *dotted* as in BRYUM *extinctorium*, sometimes *prickly*, as in BRYUM *pyriforme*, or *heteromallum*. They are brown, yellow, or greenish. (Hedwig.)

USES.—MOSSES thrive best in barren places. Most of them love cold and moisture. Trifling and insignificant as many people think them, their uses are by no means inconsiderable. They protect the more tender plants when they first begin to expand in the spring, as the experience of the gardener can testify, which teaches him to cover with moss the soil and pots which contain his tenderest plants; for it equally defends the roots against the scorching sunbeams and the severity of the frost. In the spring, when the sun has considerable power in the day time, and the frosts at night are severe, the roots of young trees and shrubs are liable to be thrown out of the ground, particularly in light spongy soils. But if they are covered with moss, this accident never can happen. Those who are fond of raising trees from seeds, will find their interest in attending to this remark.

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* On the varying structure of the Peristoma, and the figure and disposition of the barren florets, the author proposes to establish the Genera of Mosses.

Mosses retain moisture a long time without being disposed to putrefy. The angler takes advantage of this circumstance to preserve his worms, and the gardener to keep moist the roots of such plants as are to be transported to any considerable distance.

It is a vulgar error to suppose that Mosses impoverish land. It is true they grow upon poor land which can support nothing else; but their roots penetrate very little, in general hardly a quarter of an inch into the earth. Take away the Moss, and instead of more grass you will have less; but manure and drain the land, the grass will increase and the Moss disappear.

The SPHAGNUM *palustre*, the MNIUM *triquetrum*, the BRYUM *paludosum* and *æstivum*, the HYPNUM *aduncum*, *scorpoides*, *riparium* and *cuspidatum* grow upon the sides and shallower parts of pools and marshes; and in process of time, occupying the space heretofore filled with water, are in their half decayed state, dug up and used as fuel, under the name of Peat. These marshes, drained partly by human industry, and partly by the long continued operations of vegetables, are at length converted into fertile meadows.

Very few Mosses are eaten by cattle. The Bishop Moth, and the Brussels Lace Moth feed upon some of them. Their medicinal virtues are but little known, and less attended to. I think it probable, that on account of their astringent properties, some of them might be worth trying as a substitute for oak bark in tanning leather.

HEPATICÆ.

Female fructifications inclosed in a veil, which splits open at the top, and discharges the capsule.

CAPSULE opening lengthwise, filled with seeds.

SEEDS numerous, fixed to an elastic cord, formed of one or two spiral threads.

Some plants are referred to this subdivision on account of their agreement in general habit, though the female fructification has no veil, but is placed upon, or immersed in the substance of the leaf.

The leaves are mostly lobed, exhibiting a network of vesicles, and though dried, reviving again when moistened with water.

Hedwig observes that all the female florets have a double calyx, or a Cup and a Blossom. In shape and structure he says they greatly resemble the proper Mosses, but that he never found the succulent threads; the Pistil-like substances are however found, accompanying both the germen and the ripened capsule; but not in all the species.

The Capsule, like those of the preceding Mosses, is inclosed in a Veil, to which the style adheres; but this Veil is not as in them, loosened at its attachment and raised along with the growing Capsule, it tears open in two, three, or four places, and has therefore been sometimes considered as a petal.

All these Mosses agree in ripening their fruit, which is raised upon an elongated fruit-stalk, and opens into 4 Valves, filled with the seeds, attached to elastic cords. These seeds proved upon trial to reproduce their respective plants.

JUNGERMANNIA *nemorea*. It bears its male, or barren flowers, which are of a reddish brown colour, at the summit or extremity of the Stem, in one plant, and its female florets at the extremity of another plant.

Pl. xiv. f. 30. A male plant of its natural size.

f. 31. The flowering summit of the male plant.

f. 33. The germen of the female plant, with its pistil, and 3 pistil-like bodies at its base, taken from the calyx leaves at the top of the plant.

JUNGERMANNIA *asplenioides*. The extremity of the male plant forms a beautiful tiled, two-rowed Involucrum of leafits, very concave at the base, within each of which are found 2 or 3 stamens of a milky colour.

The female flowers are on a distinct plant, included also in a leafy calyx or perichætium, at the top of the plant.

f. 35. A male plant of its natural size.

f. 36. The tiled leaves at the extremity of the plant, which includes the anthers.

f. 37. An anther taken out of the Perichætium or leafy calyx.

f. 38. An anther open at the end, after shedding its pollen.

f. 39. A female plant of its natural size.

Pl. xv

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f. 40. The germen with its style and accompanying pistil-like vessels, taken out of its Perichætium at the extremity of the plant.

f. 41. The Seeds, with the elastic threads to which they are attached.

JUNGERMANNIA *pusilla.* The stamens very much resemble those of the Sphagnum *palustre*; they are placed upon the Stem, in the bosom of the leaves; their colour greenish, changing to yellow. The female flower is found towards the top of the same plant, in a perichætium, but by the growth of the plant during the ripening of the Capsules, they are at length found about its middle.

f. 42. The plant of its natural size.

Pl. xv. f. 43. The same magnified, to shew the 4 stamens at its base, and the female flower at its summit.

Pl. xiv. f. 44. A Stamen more highly magnified.

f. 45. The germen and style taken out of its perichætium.

f. 29.* The Veil separated from the ripened capsule.

f. 46. A Seed, with its elastic thread.

JUNGERMANNIA *palmata.* The flowers with stamens are found at the extremities of the branches; after flowering, they fall off, and give the branch the appearance of having been lopped. The female flower is generally at the base of the branches, but sometimes also at their sides, on a distinct plant.

Pl. xiv. f. 47. A male or barren plant of the natural size.

Pl. xv. f. 48. The same magnified, to shew the barren florets *(aa)* *(c)* one of them open at the end.

Pl. xiv. f. 49. Two stamens separated.

f. 50. A fertile or female plant of the same species magnified, with the Capsule open, its valves turned back, and the elastic threads at its extremity.

f. 51. The elastic thread, with the seeds.

JUNGERMANNIA *furcata.* The male flowers of this are found concealed in the substance of its trunk; the female ones are on the same plant, and possess nearly a similar situation.

Pl. xv. f. 52. The plant of the natural size.

f. 53. A small bit of it highly magnified, to shew the two male florets *(aa)* and the female floret *(b)*.

f. 54. A male floret further magnified.

f. 55. A Stamen separated.

f. 56. The Perichætium of the female floret cut through lengthwise.

f. 57. The ripe Capsule open, and the Seeds adhering to the elastic threads.

JUNGERMANNIA *epiphylla*. The male florets form protuberances on the upper surface of the leaves. The female florets are formed at the extremity of the leaf, but as they ripen, the growth of the leaf continuing, they ultimately appear on its disk. Want of attention to this circumstance has given rise to errors respecting the species of these plants.

f. 58. The plant somewhat magnified, to shew more distinctly the dots of male florets, and the female floret concealed under its scaly calyx at the end of the leaf, at *(d.)*

f. 59. The female floret taken out of its calyx.

MARCHANTIA *polymorpha*. Early in the spring we find upon this plant certain glass-shaped cups, containing lentile-shaped substances; these are perfect young plants, either formed at once from the parent plant, or else growing from seeds deposited thereon. Soon after we may observe some entire targets formed; and as these rise upon their foot-stalks, on other plants, either on the same, or on a different tuft, stellated targets appear, which grow taller than the entire ones. The entire targets, when cut through, vertically, are found to contain the stamens; surrounded by their succulent vessels. The stellated targets contain the germens, two or three of which are found under each of the rays, invested with its membrane, out of which the pistil projects previous to the impregnation of the germen. These germens do not ripen all at the same time. In a favourable situation this plant flowers again in July. From what has been said, it is evident that in this species the male and female florets are to be sought for on distinct plants.

Pl. xv. f. 60. A target of male flowers cut perpendicularly down through the foot-stalk.

f. 61. A follicle of stamens taken out and more magnified, to shew its surrounding ring.

f. 62. A Germen with its projecting style.

f. 63. A Capsule, with its 3 succulent fibres.

f. 64. An elastic Cord taken out of the ripe Capsule, with one of the seeds.

MARCHANTIA *conica.* The male flowers are sitting; in every other respect they so exactly resemble those of the preceding species, as to render any further description of them unnecessary; but the female flowers have a singular structure in respect to the pistils. At the time the stamens attain perfection, the conical assemblage of female flowers displays within their proper membranes, as many pointed styles as there are germens. On account of their tender structure, it is very difficult to examine them, but, when nicely dissected, the style appears to proceed from the base of the germen, and to bend upwards towards its point. The capsule is furnished with a veil, which does not fall off, but bursts by the expansion of the capsule, which at length, when quite ripe, opens with 4 valves, which roll back.

Pl. xv. f. 65. A Disk of male florets cut down perpendicularly.

f. 66. Six female flowers taken from the common fruit-stalk, with the six styles bent back.

f. 67. A ripe Capsule opened by the rolling back of the Valves *(h.)* shewing the seeds fixed to the elastic Cords *(i.)*

ANTHOCEROS *lævis.* The stamens, covered by the outer skin of the leaf, form spots of a yellowish green colour, and somewhat raised. As they approach to maturity, the skin bursts and contracts into an oval shape, forming a kind of calyx. Each of these spots contains three or more follicles of Stamens, of a reddish yellow colour.—Each Stamen is furnished with its filament, and surrounded by a jointed succulent vessel. At the same time the female flower assumes an elevated conical figure, supporting a Veil on its extremity, furnished with a very short Style. When ripe, it changes to a dark brown colour, divides into two valves, scattering its seeds with an explosive power.

The ANTHOCEROS *punctatum* resembles this species in its parts of fructification.

Pl. xvi. f. 68. A part of the leaf magnified, to shew one female, and four male florets.

Pl. xv. f. 69. Two of the Stamens taken out of a male floret.

f. 70. A perpendicular section, to shew the Capsule just emerging from its sheaths, and supporting its veil.

Pl. xvi. f. 71. The ripe Capsule opened, with the columnar receptacle, and a few remaining seeds.

f. 72. A ripe Seed, prickly, and its elastic membrane.

BLA'SIA *pusilla*. It flowers in the beginning of May; at which time the leaf is narrow, and the stamens appear very near to its rib; but as the membranaceous parts expand with the growth of the leaf, they at length appear at a distance from the rib. The anthers are yellowish, rather protuberating, inclosed in a follicle, from which they are with difficulty extracted. Towards the end of the plant we discover the pistil, with its summit sitting on the rudiment of the fruit, but it is very fugacious. As the fruit ripens, the place before occupied by the style appears as a tube, not unlike the conical horn of the Anthoceros. The capsule now becomes more heart-shaped, and its narrow point looks towards the root of the plant. At length the globular seeds in its cavity become visible, and when ripe, they are pushed out of the mouth of the tube either by their own expansion, or by the contraction of the capsule, and sticking there, have an appearance like the male floret of the Mnium *androgynum*.

f. 73. The plant magnified, to shew the dots of the male florets, and the two female florets.

Pl. xvi. f. 74. A Stamen taken out of a male floret.

f. 75. An unripe Capsule divided perpendicularly to shew the seeds.

RIC'CIA *glauca*. The leaf has no rib, but seems composed of vessels equally dispersed. When magnified, it appears covered with tubercles, and amongst these we observe distinct shining globules. One of these globules, when nicely dissected, and exposed to the highest magnifying power, in a drop of water, appears of a granulated texture. I consider those as the anthers, for nothing else appears like them. The female flower lies imbedded in the substance of the plant, where it ripens its fruit. They who reflect how small a part of a body is dedicated to the purposes of generation, in comparison of its whole bulk

Pl.xvi

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will conceive the difficulty of observing the very minute pistil of this plant, buried as it is in the substance of the plant, its summit only, opening on its surface. As the capsule swells, it becomes more apparent, and by a perpendicular section through the substance of the leaf, we discover the style of a beautiful brown colour, ascending from the capsule to its surface. The seeds are at first white, afterwards greenish, but nearly transparent, and surrounded with a very transparent white border. The capsules, when ripe, open on the surface of the plant, forming a black spot, visible to the naked eye. They are generally observable towards the base of the leaf.

f. 76. The plant of its natural size.

f. 77. Part of the same magnified, to shew the more superficial spots containing the stamens, and the deeper seated female flowers *(aa)*.

f. 78. A follicle of anthers separated, and highly magnified.

f. 79. A perpendicular section through the substance of the plant, to shew the ripening capsules, and their styles rising up to the surface of the leaf.

f. 80. A Capsule taken out, together with its style.

AL'GÆ.

The plants comprized under this division scarcely admit of a distinction of root, stem, and leaf; much less are we enabled to describe the parts of the flowers. The Genera, therefore, are distinguished by the situation of what we suppose to be the flowers or seeds, or by the resemblance of the whole plant to some other substance we are well acquainted with. Pl. 1. E. and F. represent Lichens, and C. a Fucus.

The *female fructifications* are either to be found in saucers or tubercles, as in Lichens; in hollow bladders, as in Fucus, or dispersed through the substance of the plant, as in Ulva.

The substance of these plants varies much; it is flesh-like, or leather-like; membranaceous, or fibrous; jelly-like, or horn-like; or resembling calcareous earth.

Some of them possess irritability, or an appearance of sensation.

Hedwig has done less to elucidate this Order than those which we have already spoken of; but shapeless and unorganized as some of the Lichens seem to be, his genius, aided by indefatigable industry, has explored the heretofore latent secrets of their fructification, as will appear from the following account of the

LIC'HEN *ciliaris*. The fringes from the extremities destined to take root, and the downy matter on the surface, have nothing to do with the real parts of fructification. These are to be found in the concave saucers, or convex targets or warts, either on the same or on a different plant. They both arise from a kind of knot on the under surface of the plant. The warts change to a brown, and then to a black colour at the top; but before they become brown, a perpendicular section through one of them, discovers a single or double cell buried in the tender pulp of the plant, and filled with a granulated substance. Whenever the top of this wart or tubercle turns black, the granulated mass has then escaped through it, and only a kind of jelly remains in the cells; which, however, soon vanishes, whilst the whole tubercle becomes black and hard. This process is performed in a short time.

The rising particle, which is destined to form a concave saucer, becomes hollow and green at the top, through which, if we make a perpendicular section, we find fibres radiating from its centre, and forming a semi-circle, bounded by a more opake line. As this continues growing, the saucer becomes larger, and more and more open. Its cavity is at first reddish, gradually becoming darker. At length it becomes a perfect saucer, either sitting, or supported on a short foot; its border scolloped or entire, black within when moist, and greyish when dry.

If now we cut the saucer through, and examine a vertical section of it in a little water, we shall find immediately under the black crust at the top, the seeds disposed in straight perpendicular columns. When very highly magnified, these seeds appear egg-shaped, but marked with a distinct groove transversely. No unprejudiced person can therefore doubt that the warts with the black tops are the male, and the saucers the female flowers.

The saucers, in all the species of Lichens, resemble the above in the mode of flowering, and in the same disposition of their fruit. The male flowers are also similar, whether contained like those of the L. *ciliaris* in the substance of the plant, or as in others, on its surface. In some species, as in the L. *physodes*, they are found on the extremities of the branches; in others on the edges, as in the L. *farinaceus*; *fraxineus*; in others again on the under surface, as in the L. *pulmonarius*, *apthosus*, &c. where they sometimes form circles somewhat resembling saucers, as in the L. *stellaris*.

Pl. xvi. f. 81. Part of the plant magnified to shew *(o o o)* the male, and *(m)* the female flower. *(n n)* the fringes which strike root; some of them expanding at the end.

f. 82. The section of a stameniferous flower cut through perpendicularly.

f. 83. The section of an unopened flower.

f. 84. Section of a flower, with the ripe seeds.

f. 85. Ripe seeds taken out.

LICHEN *physodes*.

f. 86. The male, or barren plant of its natural size.

f. 87. Its stameniferous extremity highly magnified.

Some of the Fuci and Confervæ have been lately illustrated by the accurate enquiries of Major Velley;* and my friend Mr. Stackhouse has undertaken the history of the Fuci, the Ulvæ, and the Confervæ of the British shores, particularly with a view to the discovery of their modes of fructification; ‡ so that we may hope soon to attain a more scientific knowledge of these obscure tribes of plants.

Uses.—Some of the Fuci are used as food, and all of them, as well as the Confervæ, are an useful manure, of the greatest importance to our farmers on the sea coast.

The Lichens, though generally looked upon as unworthy of notice, are of great consequence in the œconomy of nature, and afford the first foundation for vegetation. The crustaceous kinds fix upon the barest rocks, and are nourished by such slender supplies as the air and the rains afford them. When these die, they are converted into a very fine earth, in which the tiled LICHENS find nourishment, and when these putrefy, and fall to dust, various Mosses, as the BRYUM, HYPNUM, &c. occupy their place; and in length of time, when these perish in their turn, there is a sufficiency of soil, in which trees and other plants take root. This process of nature is sufficiently apparent upon the smooth and barren rocks upon the sea shore.

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* See coloured figures of marine plants, with descriptions and observations, by Thomas Velley, Esq. fol. 1795.

‡ Nereis Britannica, or a Botanic Description of the British Marine Plants, with drawings from nature, by John Stackhouse, Esq. F. L. S. fol. 1795.

Many of the LICHENS are a grateful food to goats; and the rein-deer, which constitutes the whole œconomy of the Laplanders, and supports many thousand inhabitants, lives upon one of the species. Many of the species afford colours for dying. One of them, brought from the Canary Islands, viz. the Orchel, or Argol, makes a very considerable article of traffic. It is not improbable, that some of the species growing in our own island, may afford very beautiful and useful colours; but this matter has not been sufficiently examined. Mr. Hellot gives us the following process, for discovering whether any of these plants will yield a red or purple colour. "Put about a quarter of an ounce of the plant in question into a small glass, moisten it well with equal parts of strong lime water, and spirit of Sal Ammoniac; or the spirit of Sal Ammoniac made with quick lime, will do, without lime water. Tye a wet bladder close over the top of the vessel, and let it stand three or four days. If any colour is likely to be obtained, the small quantity of liquor you will find in the glass will be of a deep crimson red; and the plant will retain the same colour when the liquor is all dried up. If neither the liquor nor the plant have taken any colour, it is needless to make any further trials."

FUNGI.

This Order consists of plants mostly of a cork-like texture, of short duration; bearing their seeds either in gills or tubes, or attached to fibres, or to a spongy substance. As we know but little of their fructification, the Generic characters are taken from their external form, or from the disposition of their seeds. An Agaric is represented in pl. 1. at H. to shew *(a)* the RING; *(b)* the STEM; *(c)* the PILEUS.

The following are the principal discoveries of HEDWIG on the subject of Fungi.

AGA'RICUS *(Amanita) arborea mollis, coloris exacte crocei, Dill. Giss. p.* 182.

On dividing a plant of this species longitudinally through the middle, before the curtain had began to separate from the edge of the Pileus, the whole inner surface appeared white; but whilst my attention had been arrested by some still whiter lines observable in the flesh of the Pileus and of the stem, the upper and inner surface of the curtain changed to a violet, and in a short time to a brownish colour. On nicely raising a small portion of this surface, and viewing it under high magnifiers, I discovered pellucid succulent vessels, and innumerable oval globules connected therewith, of a dilute brown colour. The part from which this portion had been taken away did not change colour again.

I next examined a portion taken from one of the gills, whilst it was yet white. It was divisible, though not readily, into two laminæ. The lower edge was thickly set with tender cylindrical substances, some of which had a globule at their extremities, but others not. The gill itself appeared of a reticulated structure, with larger and more distinct spots, a little raised.

In another older plant of the same species, wherein the curtain was torn, the pileus pretty fully expanded, and the gills turned yellow, the upper part of the stem began to be tinged by a brown powder shed from the gills. It was evident, on examination, that this brown powder was the seeds, and that it proceeded from the larger spots before observed in the gill, the two laminæ of which now readily separated.

Pl. xvi. f. 88. A view of the plant cut down lengthwise.

f. 89. Strings of the Stamens very much magnified.

f. 90. A portion of the Gill, to shew the unripe seeds.

f. 91. The ripe seeds.

There is therefore reason to believe that the stamens are the globules attached to the threads found within the curtain. After these vanish, the plant continues to grow until it scatters its seeds, and then it dies.

We learn from these observations, that the full expansion of the pileus indicates the maturity of the seeds, and that the fructification is performed previous to the rupture of the curtain.

On examining the curtains and the rings of different Agarics and Boleti, I have always found the above-mentioned globules on their upper or inner surface. In some of the yellow Agarics, they are so numerous on the upper surface, as to stain the fingers when touched, but the under side is smooth, and entirely destitute of them. Some few Agarics seem to have only a row of these threads beset with globules at the edge of the Pileus, whilst it is in contact with the stem, and upon this expansion they shrivel and drop off.

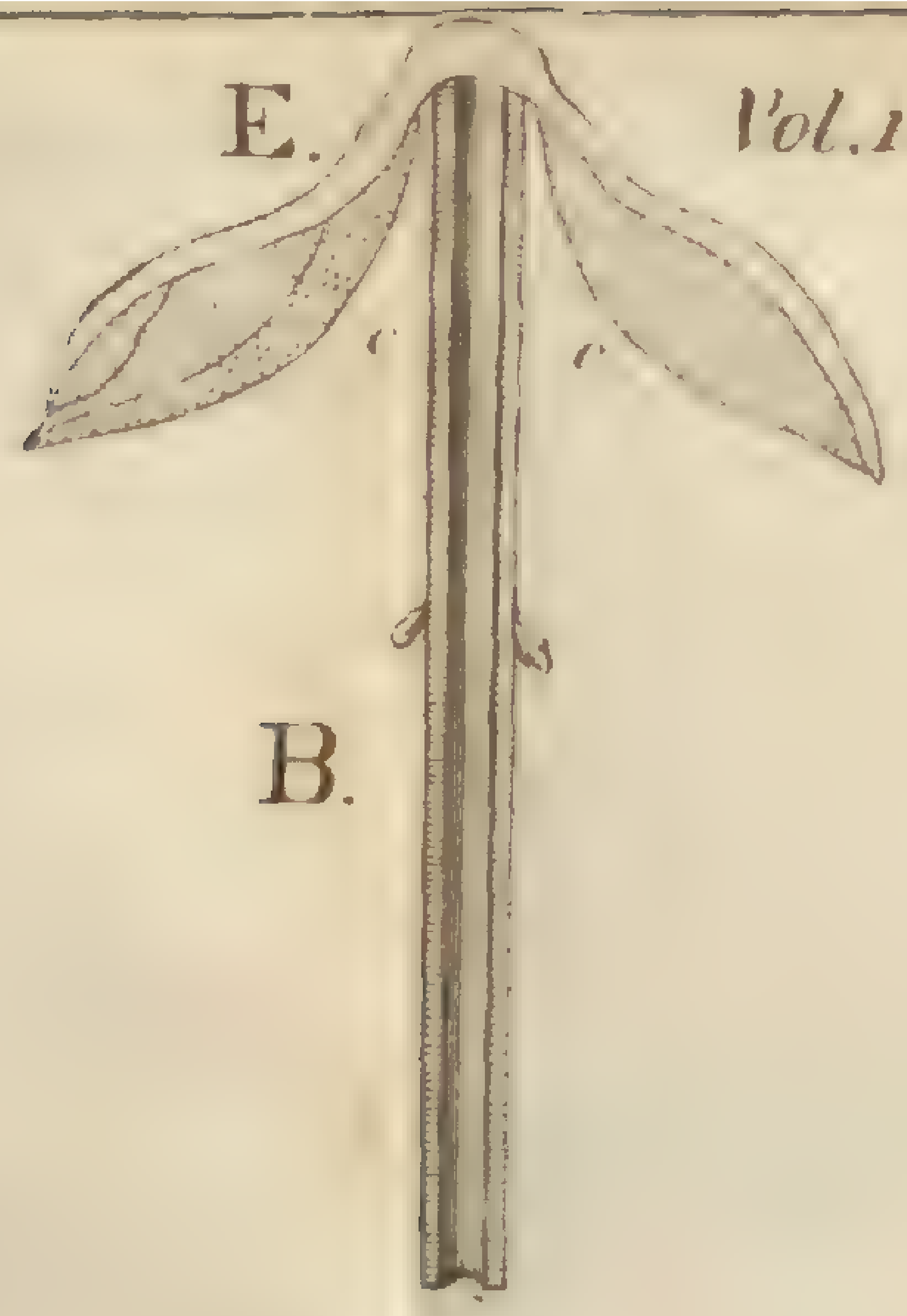
It is true that in many Agarics we neither find curtain nor ring, nor these threads at the edge of the pileus; but when this is the case, the threads are placed upon the stem, and may readily be found by examining the plant in its very young state, before the edge of the pileus separates from the stem. This structure takes place in many of the Agarics, the Hydnum *imbricatum*, and the Boleti, which are rarely furnished with a curtain. After the pileus in these is expanded, and the stem grown longer, its upper part where the stamens were seated, becomes reticulated. The seeds of the Boleti are found within the membrane that lines the tubes.

The stemless Agarics and Boleti present similar appearances about the edge, and at the base. I have also found something of the same kind in the Peziza *cyathoides*, whose seeds appear to be inclosed in a kind of pod; and likewise in one or more of the Lycoperdons; but these have not yet been sufficiently examined.

Whether the succulent vessels in the margin, fig. 90. or the surface of the gills, or the mouths of the tubes be, or be not, styles and summits; or whether they are designed for any other purpose, I shall not determine.

It is, however, sufficiently evident, that the Agarics, and the Boleti, are vegetables, and that they bear their stamens and pistils on the same plant. (Hedwig.)

For the practical purposes of investigation, it is therefore evident, that the minutiæ of the fructification can avail us but little.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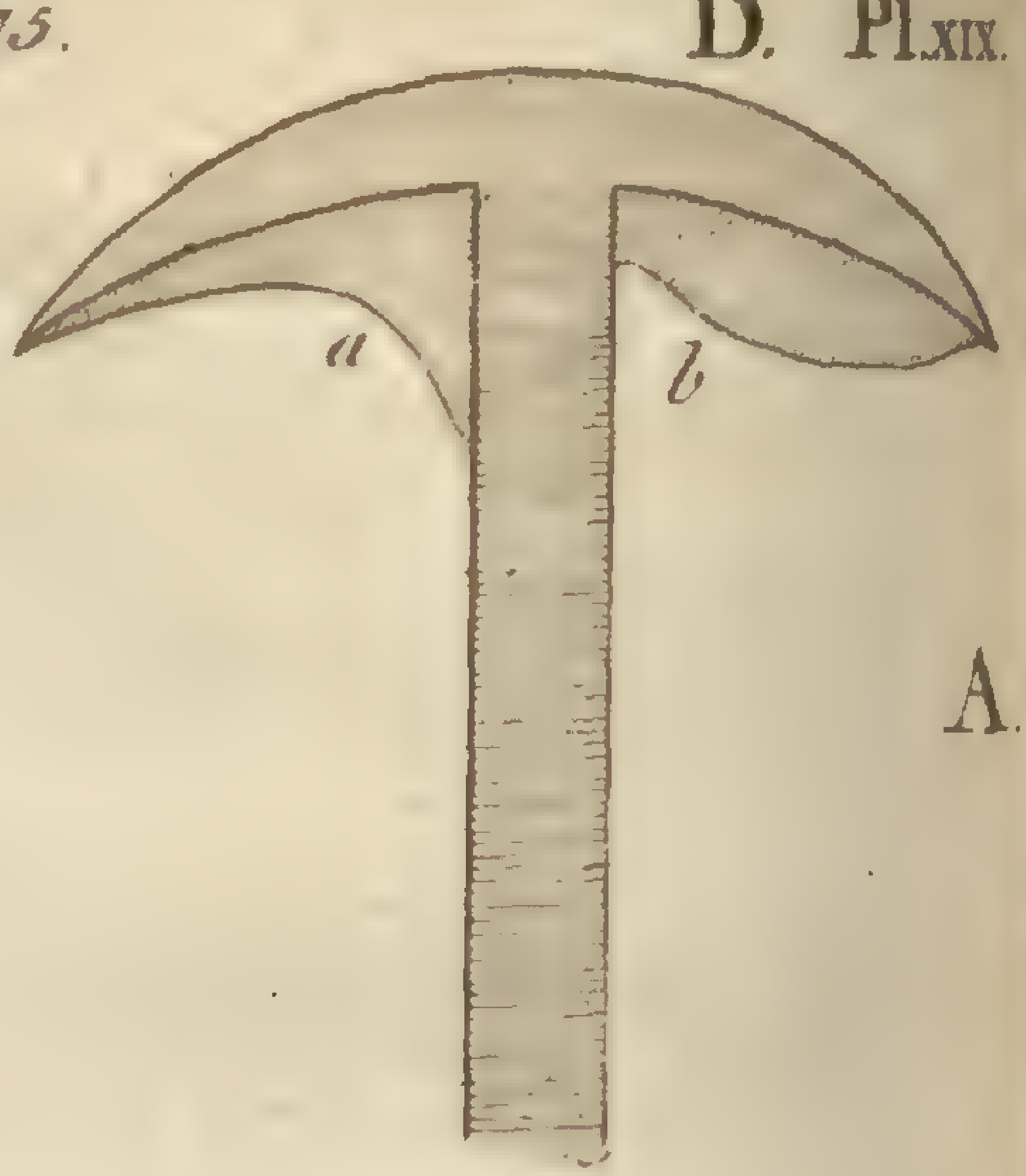
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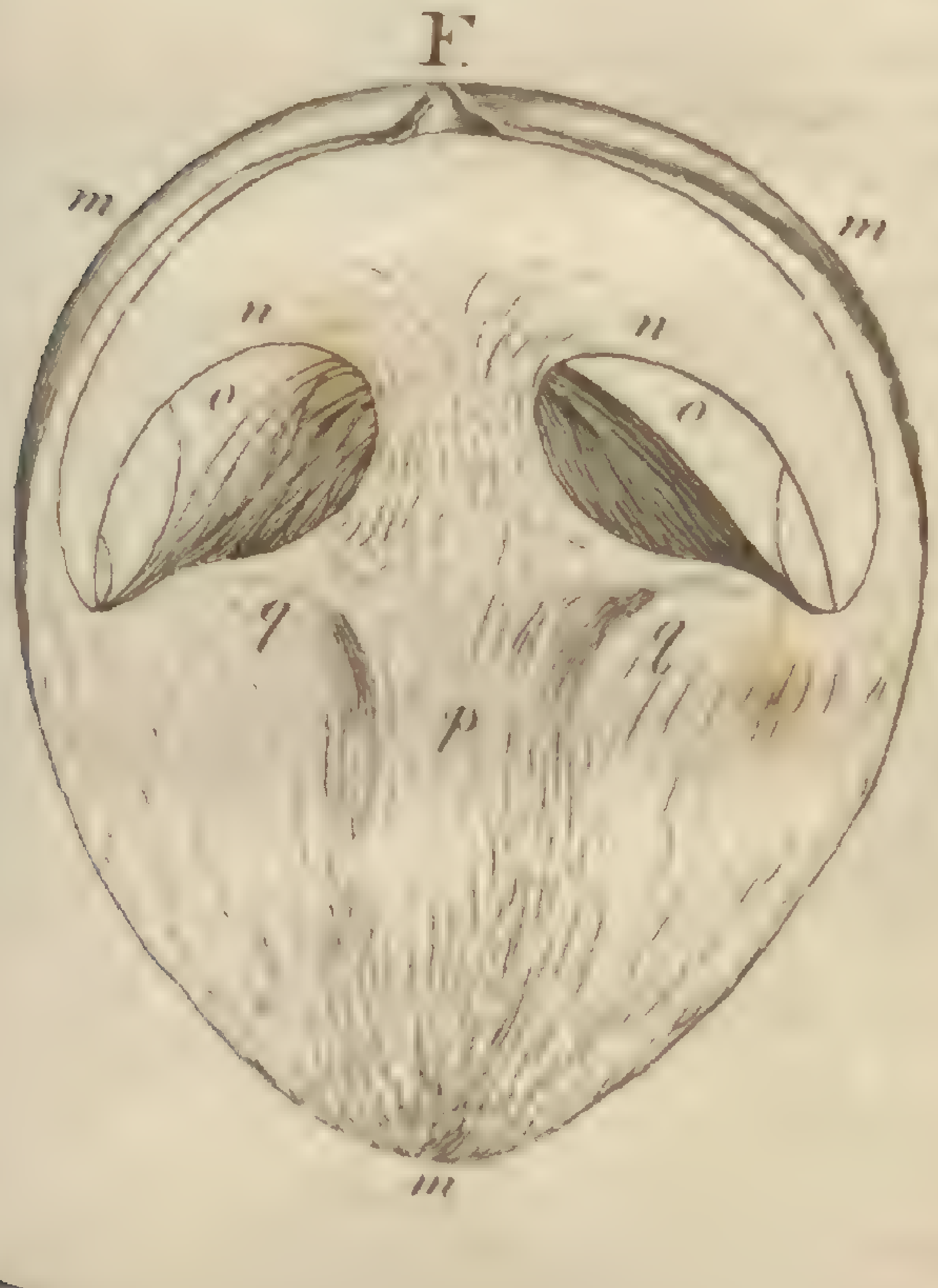
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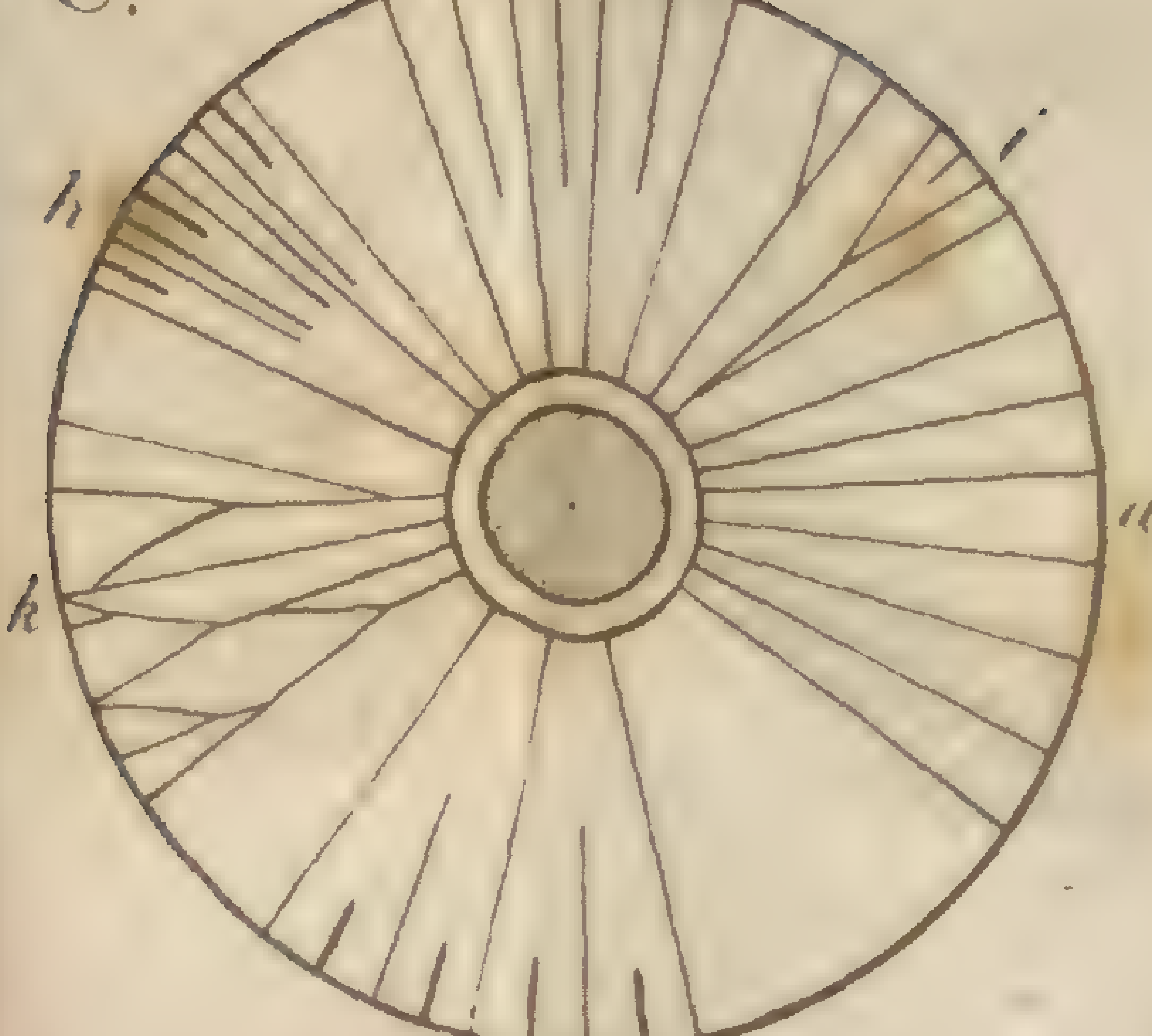
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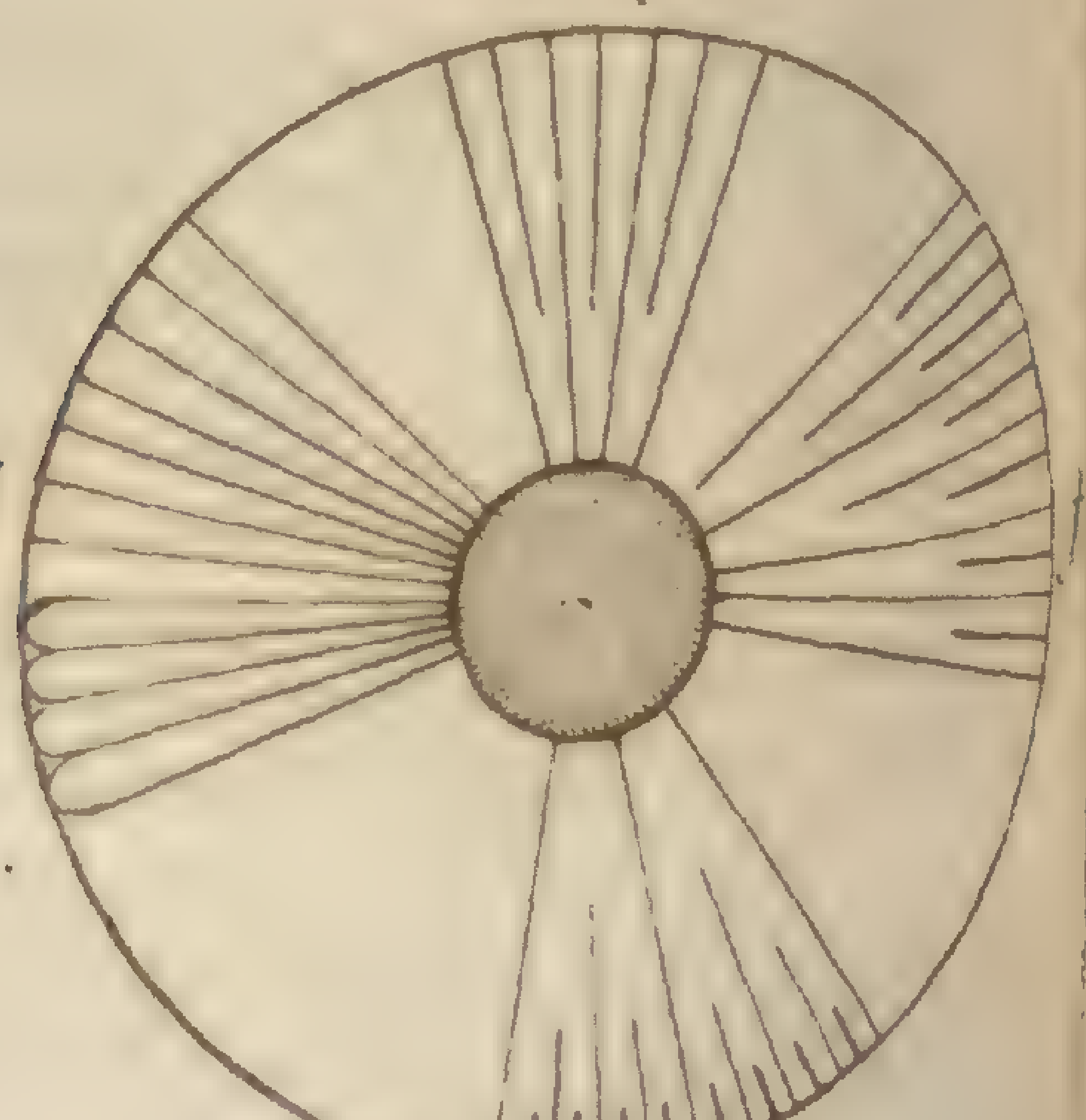
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The Agarics and the Boleti, numerous and beautiful tribes of plants, are now arranged in a method which the author hopes will be found sufficient to obviate the principal difficulties which have attended the study of them, and to render the investigation of the species, at least as easy as any other part of the system. He therefore requests the attention of the reader to the following explanation of the principles on which they are arranged, referring him, for the preservation of the specimens, to what has been already said at page 38 and 39.

AGARICS are composed of a Cap, or PILEUS, with GILLS underneath, and have either STEMS or no Stems.

The STEMS are either central or lateral: hence arise 3 primary divisions of the Genus, already in use, and adopted by Linnæus.

A. Stems central.
B. Stems lateral.
C. Stemless.

They have also a ROOT, more or less obvious, and some of them, in a yet unfolded state, are wholly enclosed in a membranaceous or leather-like case, called a WRAPPER. Some of them have a CURTAIN, or thin membrane, extending from the stem to the edge of the pileus; this curtain tears as the pileus expands, aud soon vanishes; but the part attached to the stem often remains, forming a ring round it. This RING is more or less permanent, as its substance is more or less tender, but some of the species appear some years with, and other years without a Ring,* so that though it forms a very obvious character, it cannot be admitted as a ground of specific distinction.

Pl. 19, fig. (F.) (borrowed from M. Bulliard,) shews a vertical section of an Agaric of the more compleat kind, in its egg-state, in order to demonstrate all the parts mentioned above.—(m.m.m.m.m.) the Wrapper.—(n.n) the Pileus. —(o. o.) the Gill.—(p.) the Stem, before it shoots up.—(q. q.) the Curtain. On the section of a Stem at (B.)

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* e. g. Ag. æruginosus.

may be seen the remains of a Curtain, then called a Ring. The Curtain and the Ring must be rejected in forming characters of Agarics, for the reason just now mentioned, and the Wrapper is not easily accessible, nor is it very often found, so that it does not afford much aid in the discrimination of the species. The Curtain and its remnant the Ring, are common to all our secondary subdivisions of Agarics with central Stems, but the Wrapper seems to be confined to the plants with solid stems only; nor has it been found attendant even upon those when the Gills are decurrent.

The STEM of an Agaric is either solid, or hollow. The *solid* Stem is represented at (A.) the *hollow* Stem at (B.) When an Agaric is to be examined, cut the stem across about the middle, with a sharp knife, and it must immediately appear whether it be solid or hollow. Let it be remarked, however, that the *solid* Stem varies much in degree; it may be as solid as the flesh of an apple, or as spongy as the pith of an elder stick, or a sun-flower stalk, but still it is solid, *i. e.* there is no regular hollow pervading its whole length; though the more spongy and larger Stems sometimes shew irregular and partial hollow places from the shrinking of the pithy substance when the plant grows old, but this can never be mistaken for a regular, uniform, and native hollowness, (B.) represents a *hollow* Stem. The width of this hollow part varies much in different species, and is by no means always proportioned to the size of the Stem; though it is uniform and regular throughout its whole length, except perhaps at the bottom, where it changes to a root. This hollow is sometimes entirely empty, sometimes loosely filled with a pithy substance, but its regularity is not affected by that circumstance. Next to the Gills, the Stem of an Agaric is the part least liable to variation. When its shape is not that of a cylinder, its diameter, as expressed in the descriptions, must be understood to be the diameter of its middle part.

The GILLS are the flat, thin substances, found underneath the Pileus, and attached to it; they are of a texture evidently different from that of the Stem or the Pileus, they assume different colours in different species, and vary much in their respective lengths. Each Gill consists of two membranes, and between these the Seeds are formed.

The Gills are always attached to the Pileus, and sometimes to that only, as at fig. (E. c. c.) They often shoulder up against the Stem, and are *fixed* to it, as at fig. (A. b.) and frequently they are not merely fixed to the Stem, but extended along it, downwards, as at (a) in the last mentioned figure. This is what we shall call a *decurrent* Gill. The *fixed* and *decurrent* Gills are attached to the Stem *only by their ends*, which are next to the centre of the Pileus, not by their edges, as is sometimes the case in some of the Agarics whose Pilei or Caps are nearly cylindrical. In some of these the edges of the Gills are pressed close to the Stem, and even adhere to it more or less in the young state of the plant, but separate before it attains its full expansion. This, therefore, is a very different kind of attachment to that which we mean to express by the terms *fixed* or *decurrent*.

Our secondary subdivisions of the Agarics, are founded upon what has been just now explained, and are as follows:

STEM solid;
1. Gills decurrent.
2. Gills fixed.
3. Gills loose.

STEM hollow;
4. Gills decurrent.
5. Gills fixed.
6. Gills loose.

But the Gills containing the fructification of these plants, are of the utmost importance, and therefore demand more particular notice. They vary very much in length, for though they all extend to the edge of the Pileus, they do not, except in a few instances, all reach to the Stem; moreover they are sometimes forked or divided, and sometimes connected or anastomosing one with another. All these circumstances are explained by the two circular figures at the bottom of plate XIX.—Thus,

(d) Gills uniform. These uniform Gills sometimes seem connected together at the edge of the Pileus, as represented below (d.)

(e.) Gills in pairs.
(f.) Gills 4 in a set.
(g.) Gills 8 in a set.
(h.) Gills irregular, that is, no determinate number in a set.
(i.) Gills branching.
(k.) Gills branching and anastomosing.
C. Gills *loose* from the stem, but the inner end fixed to a Collar which surrounds the top of the Stem, though not in contact with it.

These various circumstances of the Gills seem at first sight well adapted for subdivisions of the species, and also for the formation of specific characters; but they are so much subject to variation, that no use can be made of them for either purpose. Thus, the Gills called *uniform,* are seldom strictly so, a shorter Gill now and then intervening. The Gills *in pairs* have place only in a few species, and are subject to vary; the Gills 4 *in a set*, occupy by far the greater part of the species, and those which have 4 in a set in the younger plants, are very apt to shew 8 when more fully expanded, some of the longer Gills tearing from the Stem. Moreover, though 4 in a set be the predominant number in many of these plants, we often find but three, or even two, owing to the absence of one or more of the smaller Gills. The colour of the Gills is fortunately an obvious, and at the same time a *permanent* circumstance; and when we reflect, that their colour is principally, if not solely, caused by that of the Fructifications or Seeds within them, we might *(a priori)* have expected, what experience has taught me to be the case, that it is the most fixed, the most certain characteristic, on which to found the distinctions of the species; and that this, together with the structure, will be at all times sufficient to afford permanent specific distinctions. It is allowed that these colours change when the plant begins to decay, but no Botanist would complain that the characters are wanting in a subject collected in a rotten state. The colour of the *flat* sides of the Gills is what I wish to be attended to, because the colour at the edge, in some plants, is different, through all the stages of growth, and in others it changes sooner than that of the sides, evidently from the discharge of the Seeds when ripe. The colour of the whole of the Gill being sometimes influenced by the ripened Seeds, it is clear that this colour ought to be described, where it is liable to such a change, not only in the perfect and vigorous state of the plant, but also in its mature and nearly decaying state, taking its character from the former. Thus in several of the deliquescent Agarics, especially such as *dissolve in decay* to an inky liquor, the plants, when *very young, have white* Gills; these become *grey* when the *Seeds are formed,* and *black* when quite ripe, and *the plant dissolves in decay.* These circumstances may be *properly noticed* in the history of the plant, but *no one would think of* taking its character from its yet but *half unfolded* state, any more than from its state of decay; such a plant, therefore, must be placed amongst others whose Gills are *grey.*

The STEM is a less variable part than *the* Pileus; its shape, the proportions of its length to its breadth, and of both to the Pileus, afford tolerable *distinctive marks,* and its colours, though more changeable *than those of* the Gills, are, perhaps, rather more *fixed than those of* the Pileus.

The PILEUS, or CAP, is the part of an Agaric the last to be attended to, and the least to be depended on. Its shape is either conical, convex, flat, or hollowed at the top like a funnel;* it is constantly varying in the same plant, but is pretty uniformly the same in the same species when the plant is in perfection, that is, when *fully or nearly* fully expanded, but before it exhibits symptoms *of decay.*

The *colour* of the Pileus is often extremely uncertain, and in that case can no further be admitted into a character, than as it may serve to mark the varieties.

The *Viscidity,* or clamminess on the surface of the Pileus and Stem, frequently observed in some Agarics, has been made a part of their character; but it is not much to be depended on; for in dry weather some of the viscid species shew no symptom of a moist or even adhesive substance, and in a moist atmosphere, many, at other times dry to the feel, become more or less viscid.

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* (E.) represents a conical, (D.) a convex Pileus.

The *Lactescent*, or milky juiced Agarics, at one time seemed to force themselves into observation, as laying claim to a well-founded subdivision; but further experience demonstrated, that neither those with a mild, nor those with an acrid milky juice, were invariably milky. This was an unexpected circumstance, nor does it yet appear upon what it depends. Some plants, apparently healthy and vigorous, shall shew no signs of milk when wounded, whilst others of the same species on the same spot, and at the same time, shall pour out their milk in abundance. It must be acknowledged, that this difference is not very common, but it certainly does take place.*

Such are the grounds of the present attempt to reduce the Agarics to a System; an attempt, which, if established, will greatly facilitate the investigation of the species, and if it fail to merit the countenance of the public, will probably give birth to another and a better.

The author is sensible that some of the specific characters may be thought too long, whilst a few may be found too short; but these cannot be ultimately adjusted until the discovery of new species shall cease. That many new ones still remain to be ascertained, is highly probable, since so many have occurred within his own observation, and that of his correspondents.

A few, and only a few exceptions have occurred to the general laws of the System; and it will be right to mention them here. The Agaricus *velutipes*, and the Ag. *sulcatus*, have such a striking resemblance, that they must be pronounced to be the same, were not the Stem *hollow* in the one, and *solid* in the other. Can such a difference of structure be supposed to exist in the same species? If this question be answered in the affirmative, the exception must be allowed, and extended to one or two more of the minuter species. The other exception depends upon the different colours of the Gills of the Agaricus *aurantius*. This sportive species disdains the rules of the System, and exists under almost every kind of colour that can be imagined; the chief variations, however, to obviate difficulties, are inserted where the investigating Botanist would be led to look for them.

In the execution of the preceding plan, the references to figures are not very numerous, because peculiar care has been taken to avoid doubtful references. What use can there be in the insertion of a figure or a synonym with a note of interrogation at the end of it? If the Author, with all his attention collected upon the subject, and possibly with the plant before him, cannot decide, why perplex his readers by desiring them to do it? In some cases it may be useful to refer to a figure which it is well known was not drawn for the plant in question. Thus, when a new species occurs, or one which has never yet been figured, a reference to a drawing which resembles it in size, and in habit, may be useful, if care be taken to announce the circumstance, and to point out the dissimilitudes.

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* The Agaricus *rubescens*, and Agaricus *xerampelinus*, are instances of this kind of deviation.

The reader will find, on turning to other authors, that a number of references to the species before known, are omitted in this work; but he is not hastily to conclude that this has been in consequence of careless inattention. He may be assured that they have been examined, and are not omitted without a cause. Sometimes circumstances made it necessary more directly to point out these errors, but it was an invidious task; and believing, that notwithstanding his utmost care, the present work will still be liable to errors of the same nature, he has felt unwilling to censure his predecessors, to whose labours he should have thought himself greatly indebted, even were their errors ten fold what they are.

The specific character of LINNÆUS is always added, where no doubt existed of the identity of the species, and it was the Author's wish to have quoted all the Agarics of Mr. RAY under their proper heads, but the want of figures, and the brevity of the descriptions, deterred him from assigning a place to many of them. Here it may be observed, that where the descriptions of that admirable Botanist are sufficiently full, or where he could refer to a figure, the Agarics of the present day appear to be precisely what their predecessors were a hundred years ago. This it was thought necessary to remark, to quiet the apprehensions of some who have been deterred from the study of these subjects, by a prevalent idea that they were for ever changing, and were consequently incapable of any fixed or settled character. It would not be difficult to point out the origin of this opinion, but it is sufficient to say that it is not true, and that no part of the Vegetable System is less liable to change, or more steady to the rules of a well formed method than the Agarics are.

It must however be allowed, that new species of Fungi are daily discovered; but this may be owing partly to the greater attention that has of late been bestowed upon these subjects, and partly, as Major VELLEY suggested to me, to the introduction of so many exotic trees.

It remains now only to speak of the trivial names. This has been a much more arduous labour than can well be imagined. Much of the difficulties of Botanists, and many of the confusions of writers, have been owing to the application of different names to the same species, or of the same name to different species. The extent of this evil is hardly credible. Some species have six or eight different names, given by as many different authors, and in several instances the same name has been applied to ten or a dozen different plants. Surely it is time to put a stop to this useless increase of difficulties. In the execution of this work, the following rules have been adopted, and they are submitted to the consideration of others who may be engaged in similar pursuits.

1st. When a well-known species occurs, to continue the name given it by its first inventor, unless obviously and highly improper, or unless a long continued attachment to another name had quite superseded the use of the former, or unless the former name had been previously appropriated to another species.

2d. Never to change a name adopted by Linnæus, except where his name included more than one species, and then to assign it to that which he has more particularly described.

3d. In naming a non-descript species, to use the most appropriate term that occurs, provided it be such as has not before been attached to any well-established species.

The discoverer of a new species may find some trouble in complying with these rules, but he will be rewarded by considering, how much more trouble he will save to others, and how much his fellow labourers in the science will feel themselves obliged by his attentions.

The Genus Boletus, and the other Genera of the Order of Fungi, require no particular explanation, for the System adopted in the Agarics has been applied to them, as far as it was applicable, and imperfect as our knowledge of these plants at present is, such is the ardour of numbers in enquiries concerning them, that we may soon expect to strike out more perfect characters of the Genera, as well as a more judicious distribution of the species.

I. Miscellaneæ. (Miscellaneous.)

Equisetum.
Isoetes.
Lycopodium.
Pilularia.

II. Filices. (Ferns.)

Ophioglossum.
Osmunda.
Acrostichum.
Pteris.
Asplenium.
Blechnum.
Polypodium.
Adiantum.
Trichomanes.

III. Musci. (Mosses.)

Phascum.
Sphagnum.
Splachnum.
Polytrichum.
Mnium.
Bryum.
Hypnum,
Fontinalis.
Buxbaumia.

IV. Hepaticæ.

Marchantia.
Jungermannia.
Targionia.
Anthoceros.
Blasia.
Riccia.

V. Algæ.

Lichen.
Tremella.
Ulva.
Fucus.
Conferva.
Byssus.

VI. Fungi. (Fungusses.)

Merulius.
Agaricus.
Fistulina.
Boletus.
Hydnum.
Helvella.
Auricularia.
Peziza.
Nidularia.
Phallus.
Clavaria.
Tuber.
Lycoperdon.
Reticularia.
Sphæria.
Trichia.
Mucor.

MISCELLANEÆ.

EQUISE'TUM. Pl. 1. A. & Pl. 13. f. 1-6.

Fructifications forming an egg-oblong, club-like terminating spike. Pl. 13. f. 1.

Individuals in whirls, on foot-stalks, target-shaped, flat, many-sided, furnished underneath with tubes.

Tubes from 4 to 7, parallel to the foot-stalk, angular, rounded at the end, opening on the inner side, containing a powdery mass. Pl. 13. f. 2.

LYCOPO'DIUM. Pl. 1. C.

Fructifications forming oblong spikes, tiled with scales, or leaves, the fruit sitting within the bosom of the scales.

Capsules kidney-shaped, 1-celled, with 2 elastic leaves.

Seeds very numerous, and extremely minute.

PILULA'RIA. *Dill.* 79. 1.

Fructification globular, sitting within the leaves at each joint.

Calyx *common*, globular, woolly, 4-celled; each cell inclosed within its own thin membrane, which opens in 4 directions.

Bloss. none.

Stam. *Filaments* none. *Anthers* in the upper part of each cell, numerous, inversely conical or pyramidal, tapering downwards, membranaceous, 1-celled, opening crosswise. *Pollen* spherical, copious.

Pist. *Germens* in the lower part of each cell, numerous, obliquely spear-shaped, fixed by the slender end. *Style* none. *Summit* on the crown of the thicker end, conical, furrowed.

S. Vess. none, except the oblique pear-shaped membrane empty in the lower, but inclosing the seed in the upper part.

Seeds globular.

Receptacle fleshy, fixed to the outside of each cell in the space between the 2 partitions, supporting the pistil and anthers.

ISO'ETES. *Dill.* 80.

Male flowers solitary, within the base of the inner leaves.

CAL. *Scale* heart-shaped, acute, sitting.

BLOSS. none.

STAM. *Filament* none. *Anther* 1-celled, roundish.

Female flowers solitary, within the base of the outer leaves of the same plant.

CAL. as above.

BLOSS. none.

PIST. *Germen* egg-shaped, within the leaf.—*Style.*—*Summit.*—

S. VESS. *Capsule* somewhat egg-shaped, 2-celled, concealed within the leaf.

SEEDS numerous, globular.

FILICES.

* Capsules without an elastic ring.

OPHIOGLO'SSUM. Pl. 13. f. 7. 8. *Tourn.* 325.

CAPSULES numerous, united by a membrane into a 2-rowed spike, nearly globular, opening crosswise when ripe.

SEEDS numerous, very minute.

OSMUN'DA. *Tourn.* 324.

CAPSULES distinct, either forming a 1-rowed bunch, or crowded on the back of a leafit, or a segment of the leaf, sitting, nearly globular, 2-valved, opening crosswise, (or lengthwise.)

SEEDS numerous, very minute.

* * Capsules roundish, on foot-stalks, surrounded with a jointed elastic ring, and opening irregularly into 2 parts.

ACRO'STICHUM. *Bolton* 8. *Fl. dan.* 60.

CAPSULES accumulated upon the under surface of the leaf, so as entirely to cover it.

PTE'RIS. *Bolt.* 10.

Capsules disposed in a line under the edge of the leaf, which is turned back.

ASPLE'NIUM. Pl. 13. f. 14. 15. 16. *Tourn.* 315. 319.

Capsules disposed in straight scattered lines on the under surface of the leaf.

BLECH'NUM. Pl. 13. f. 9. 10. 11.

Capsules disposed in lines parallel to the rib of the leaf; approaching.

POLYPO'DIUM. Pl. 13. f. 12. 13. *Tourn.* 314. 316.

Capsules disposed in circular spots on the under surface of the leaf.

ADIAN'TUM. *Tourn.* 317.

Capsules crowded into oval spots underneath the points of the leaf, which are rolled back.

TRICHO'MANES. *Pet. pter.* 13. 13.

Capsule a turban-shaped scale, solitary, on the very edge of the leaf.

MUSCI.

PHAS'CUM. (Schreb.)

Capsule egg-shaped, sitting, or on a short pedicle, sometimes with the rudiment of a lid, closed on all sides, not opening.

Male either star-like and terminating, or bud-like and axillary.

SPHAG'NUM. *Dill.* 32. 1. 2. 3. 6.

Capsules sitting in a circle, terminating the fruit-stalk, often surrounded at bottom by an imperfect veil. *Fringe* none.

Male, axillary in the upper branches.

SPLACH'NUM. *Hedw. stirp.* ii. 13. 14. 15.

Capsule cylindrical, sitting on a hollow nearly globular or umbrella-shaped receptacle. *Fringe* simple, with 8 teeth, in pairs.

Male, a bud with a star-like top; those on fruit-stalks only, fertile.

POLY'TRICHUM. *Dill.* 54. 1.

Capsule oblong, sometimes 4-sided, sitting on a 4-sided receptacle. *Fringe* double, the outer with 32 short crooked teeth, united at the base; the inner a flat transverse membrane, adhering to the ends of the teeth of the outer. *Veil* hairy.

Male star-like.

MNI'UM. *Dill.* 31. 1. 2. *Hedw. stirp.* i. 37.

Capsule with a lid. *Veil* smooth. *Fringe* with 16 teeth, sometimes with 4.

Male a circular bud, sometimes though rarely a knob; generally on a separate plant.

BRY'UM. *Hedw. stirp.* i. 20.

Capsule egg-oblong. *Fringe* double, the outer with 16 broad, acute teeth; the inner membranaceous, plaited, keeled, jagged; segments alternately broader and narrower.

Male a knob, or a star, or a bud, on the same or on a distinct plant.

HYP'NUM. *Hedw. stirp.* iv. 15.

Capsule oblong. *Fringe* double, the outer with 16 broadish teeth; the inner membranaceous, equal, jagged; segments broadish, with hair-like segments betwixt them.

Male bud-like, on distinct plants.

FONTINA'LIS. *Hedw. stirp.* iii. 12.

Capsule oblong, enveloped by a tiled Perichætium, and sitting on a short pedicle. *Fringe* double, the outer with 16 broadish teeth, the inner like network.

Male bud-like, axillary.

BUXBAU'MIA. *Dill.* 32. 13.

Capsule egg-shaped, oblique, depressed, bellying on one side; in one species bordered. *Fringe* double, the outer with 16 teeth; lopped; the inner membranaceous, plaited.

Male star-like.

HEPATICÆ.

MARCHAN'TIA. Pl. 15. f. 60-67. *Dill.* 76. 6.

Male flowers either sitting or on a pedicle.

Cal. *Cup* a membranaceous border, open, lobed or entire, permanent, pimpled in the centre.

Bloss. none.

Stam. *Filaments* none. *Anthers* numerous, pear-shaped, 1-celled, buried in the substance of the calyx, but with a tube opening upon its surface.

Female flower, on the same, or on a different plant.

Cal. *common*, large, star-like, conical or hemispherical, bearing the flowers underneath, the florets looking downwards.

Proper cup sitting, bell-shaped, with 4 or 5 teeth, membranaceous, coloured, tender.

Bloss. *Veil* sitting, shorter than its proper cup, globular or oblong, membranaceous, tender and delicate, crowned with the style, at length tearing open at the top into 2, 3, 4 or 5 segments, the style remaining on the top of one of the segments.

Pist. globular but oblong, sitting, encompassed by the veil. *Style* either straight or bent, shorter, protruding through the top of the veil. *Summit* simple.

S. Vess. *Capsules* sitting on a short and slender pedicle, inversely egg-shaped, 1-celled, opening at the top with from 5 to 10 teeth, the teeth at length rolling back.

Seeds many, globular, fixed to elastic spirally convoluted threads.

Obs. The Marchantia of the author, from whom it took its name, has the male calyx on a foot-stalk, its centre marked with rays, and its border cut into 8 segments. The female calyx has 8 or 10 divisions, the segments roundish, with an equal number of 2-valved involucres, containing many flowers placed underneath, and alternating with the segments. Besides these flowers, there are also little bud-bearing cups, toothed at the edge.

The Lunularia of Micheli has the male calyx sitting, extending only half round; the female with 4 divisions forming across, the segments involving the florets.

The Hepatica of Micheli has the male calyx either sitting, or on a foot-stalk, roundish; the female hemispheric-conical, with the cells underneath, 1 flower in each cell.

JUNGERMAN'NIA. Pl. 14. f. 29* to f. 59. *Dill.* 71. 18.

Male flowers sitting, crowded together on the stem or the leaves.

Cal. hardly any.

Bloss. none.

Stam. *Filaments* hardly any. *Anthers* egg-shaped, 1-celled, opening at the top.

Female flower on the same or on a different plant.

Cal. *Cup* upright, tubular, lopped, scolloped or jagged.

Bloss. *Veil* sitting, smaller than the cup, nearly globular, closed on all sides, membranaceous, delicate, crowned by the style, at length opening at the top.

Pist. *Germen* oblong, wrapped in the veil, sitting. *Style* short, straight, protruding through the top of the veil. *Summit* simple.

S. Vess. *Capsule* sitting on a long and slender fruit-stalk, globular, 1-celled, opening at length longwise with 4 equal, expanding, permanent valves.

Seeds many, globular, adhering to elastic twisted threads, fixed to some part of the valves of the capsule.

Obs. A single cup often contains several germens, but only 1 of these attains perfection.

The stemless Jungermannias have the anthers within the substance of the leaves, and the female flowers have no calyx, therefore it may be doubted whether these really belong to the genus.

TARGIO'NIA. *Mich.* 3.

Male flowers solitary, at the end of the leaf or segment.

CAL. none.

BLOSS. none.

STAM. *Filaments* none. *Anthers* somewhat cylindrical, clustered together.

Female flower solitary, under the point of the leaf.

CAL. 2-valved, compressed.

BLOSS. *Veil* nearly sitting, almost globular, membranaceous, closed on all sides, crowned with the style; opening.

PIST. *Germen* wrapped in the veil. *Style* short, rather bent. *Summit* lopped.

S. VESS. *Capsule* nearly sitting, globular, 1-celled; opening at the top; with 4 or more teeth. *Mich.*

SEEDS many, globular, fixed to twisted elastic threads.

OBS. I have never seen the capsule open, but can hardly doubt that it does open when the seeds are ripe.

ANTHO'CEROS. Pl. 15 and 16. f. 68 to 72. *Mich.* 7. 2.

Male flowers within the substance of the leaf.

CAL. 1 leaf, entire, or cut into segments.

BLOSS. none.

STAM. *Filaments* hardly any. *Anthers* from 3 to 8, inversely egg-shaped, at the bottom of the calyx.

Female flowers on the same plant.

CAL. 1 leaf, cylindrical, lopped, the rim entire or toothed.

BLOSS. *Veil* fibrous, crowned with the style.

PIST. *Germen* short, conical. *Style* very short. *Summit* simple.

S. VESS. *Capsule* very long, awl-shaped, 2-valved; partition loose, reaching from end to end.

SEEDS many, globular, prickly, each fixed to an elastic twisted thread connected with the valves or with the partition.

BLA'SIA. Pl. 16. f. 73. 74. 75. *Dill.* 31. 7.

Male flowers solitary, scattered through the substance of the leaf.

CAL. none.

Bloss. none.

Stam. *Filaments* none. *Anthers* nearly globular, buried in the leaf, covered with a thin skin.

Female flowers on the same plant.

Cal. none.

Bloss. none.

Pist. *Germen* egg-shaped, oblique, ending in an upright tube. *Style* very short and slender, fixed on the tube, soon falling off. *Summit* simple.

S. Vess. *Capsule* egg-shaped, slanting, 1-celled, crowned on the outer side with a short tube, which is lopped and open at the end.

Seeds many, roundish, but compressed, escaping through the tube.

RIC'CIA. Pl. 16. f. 76 to 80. *Scmid.* 44 & 45.

Male flowers; sitting on the surface of the leaf.

Cal. none.

Bloss. none.

Stam. *Anthers*; conical, lopped, sitting, opening at the top.

Female flowers on the same or on a different plant.

Cal. none, except a membranaceous cavity within the substance of the leaf.

Bloss. none.

Pist. *Germen* turban-shaped. *Style* thread-shaped, upright, reaching to or above the surface of the leaf. *Summit* simple.

S. Vess. *Capsule* globular, 1-celled, crowned by the style.

Seeds many, hemispherical, on pedicles.

Obs. The little substances which Micheli considered as anthers, much resemble, excepting only in size, the other pimply substances shewn by the microscope on the upper surface of the leaves, and appear too solid to be anthers. But having observed the tube on the top of the germen full of small granules, I have considered them as the pollen, and the tube as the anther. Let others decide this matter, but let them examine the fructification before the germen becomes spherical.

ALGÆ.

LIC'HEN. Pl. 1. E. F. Pl. 16. f. 81 to 87.

Male flowers.

Vesicles in heaps, extremely minute, like meal, either thick set or scattered on the surface, the edge, or the points of the leaves.

Female flowers; on the same or on a different plant.

Receptacle roundish but flatted, either a convex *tubercle*, a concave *saucer*, or a *target* with the edge rolled back, and fixed to the leaf. These are often of a different colour to the leaf, and contain within them the seeds regularly disposed.

TREMEL'LA. *Dill.* 10. 14.

Substance uniform, membranaceous, jelly-like, pellucid.

UL'VA. *Fructifications* in a transparent membrane. Growing in water.

FU'CUS. Pl. 1. G.

Male flowers.

Bladders smooth, hollow, with hairs on the inside.

Female flowers.

Bladders smooth, filled with jelly, sprinkled with perforated granules containing the seed.

Seeds solitary.

CONFER'VA. *Dill.* 2. f. 4. 6 & 5. f. 25.

Fibres simple, uniform, hair-like, or thread-like.

Obs. These fibres are either uniform or jointed.

BYS'SUS. *Dill.* 1.

Fibres simple, woolly.

FUNGI.

MERU'LIUS. *Fl. dan.* 384.

Pileus with rising veins underneath, of the same substance with the rest of the plant.

AGA'RICUS. Pl. 1. H. Pl. 19. Pl. 16. f. 88 to 91.

Pileus with gills underneath.

Gills differing in substance from the rest of the plant. composed of 2 lamina.

Seeds numerous, between the 2 lamina or plates which constitute each gill.

FISTULI'NA. *Bull.* 464.

Pileus with distinct *tubes* underneath.

Seeds in the tubes.

BOLE'TUS. *Bull.* 60.

Pileus with united *tubes* underneath.

Seeds in the tubes.

HYD'NUM. *Bull.* 34. *Curt.* 190.

Pileus horizontal, with awl-shaped, solid, soft, prickle-like substances underneath.

Seeds on the surface of the prickle-shaped substances.

HELVEL'LA. *Bull.* 466 & 190.

Pileus smooth on both sides.

AURICULA'RIA. *Bull.* 274.

Fungus flat, membranaceous, fixed by its whole under surface, but at length becoming detached and turning upside down.

Seeds discharged slowly from what was the upper, but now become the under surface.

PEZI'ZA. *Bull.* 497.

Fungus concave, sitting, or on a stem.
Seeds on the edges and the upper surface, discharged by jerks.

NIDULA'RIA. *Bull.* 488.

Fungus bell-shaped, leather-like, sitting.
Capsules large, flat, fixed by pedicles to the bottom of the bell.

PHAL'LUS. *Curt.* 199.

Pileus on a stem, smooth underneath, with a fleshy network, on its upper surface.
Seeds in the network.

CLAVA'RIA. *Schmid.* 15.

Fungus upright, smooth, oblong, surface uniform.
Seeds emitted from every part of the surface.

TU'BER. *Bull.* 356. *Bolt.* 116.

Fungus stemless, solid, fleshy, not becoming powdery, not opening at the top.

LYCOPER'DON. *Bolt.* 117.

Fungus roundish, opening irregularly at the top, full of powder-like impalpable seeds intermixed with wool-like filaments.

RETICULA'RIA. *Bull.* 476. 1. *Bolt.* 134.

Fungus soft and gelatinous, becoming firm and friable, opening indiscriminately.
Seeds entangled in wool-like fibres, network membranes, or leather-like cases.

SPHÆ'RIA. *Bolt.* 180.

Fungus of various shapes.

Fructifications mostly spherical, filled with a powdery mass, without fibres.

Obs. The capsules are often immersed in the substance of the plant, so that their orifices only are visible.

TRI'CHIA. *Bull.* 502. 1.

Capsules sitting or on a stem, globular or oblong, mostly fixed to a membranaceous base.

Seeds escaping from the whole surface of the capsule through the interstices of the fibres.

MU'COR. *Mich.* 91. 2 & 95.

Fungus consisting of vesicles on fruit-stalks, containing a number of seeds.

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